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Fighters or Freighters:
United States Troop Carrier Aviation, 1941-1945

Captain Lawrence Michael Martin, Jr., USAF

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During the Second World War in Europe, U.S. Army Air Force (AAF) troop carrier units filled a dual role transporting the Army's airborne assault force and carrying theater cargo. Though the Americans had paid little attention to airborne warfare before 1940, German operations convinced Army leaders to create airborne units. AAF troop carrier groups initially lacked aircraft, a shortage that delayed the development of airborne operational expertise until after assaults in North Africa, Sicily, and Italy. After D-Day's airborne missions, Allied ground commanders could not meet their supply needs due to transportation shortfalls and turned to troop carrier assets.

While the Army's doctrine focused on rapidly defeating the enemy in battle, AAF leaders believed World War II could be won quickly by properly applying airpower against the enemy's industrial capacity; they thought airpower could win the war alone. They agreed with Army Chief of Staff George Marshall that airborne units had not been used to their full potential and helped create First Allied Airborne Army in August 1944 to mount decisive airborne operations. When airborne operational plans for the airborne army conflicted with the ground commanders' logistical needs during the fall of 1944, a tug-of-war

resulted between ground commanders who viewed airpower as another tool for victory and AAF leaders who saw airpower as the tool for victory that pulled troop carrier units in two directions. By war's end, the troop carriers performed both their airborne and logistic duties well, but the lack of complete commitment to either task limited their effectiveness.

Fighters or Freighters:
United States Troop Carrier Aviation, 1941-1945

by

Captain Lawrence Michael Martin, Jr., USAF

A THESIS

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The Graduate College at the University of Nebraska

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Introduction

Balancing Priorities

Once the United States became involved in World War II, it found its airpower needs expanded beyond prewar expectations. Before World War II, the bulk of American strategic air thinking centered on using high altitude bombers to defeat an enemy with precision attacks against key industries or choke points. As demonstrated by German successes in 1940, one special area where the U.S. lacked prewar preparation was tactical airlift. Spurred by the German example, the United States developed its ability to deliver and supply combat forces through the air. Its initial work focused on creating a well-trained troop carrier force to deliver the Army's airborne divisions. As operations in New Guinea and Italy improved after failures in North Africa, Allied plans grew, culminating in huge D-Day assaults by three airborne divisions.

After D-Day, the Allies recognized the potential benefits of using idle IX Troop Carrier Command (TCC) C-47's to deliver supplies, especially gasoline, to front-line units. Allied failures to secure adequate ports and repair French roads

destroyed in the pre-OVERLORD attacks made the C-47's a valuable resource as logisticians struggled to supply the sprint across France in July and August 1944. Allied ground commanders began to rely on the C-47's to provide the critical difference in their supplies.

While IX TCC C-47's flew cargo missions during the summer of 1944, Generals Dwight D. Eisenhower and George C. Marshall, with the support of the Army Air Forces' Air Staff, created First Allied Airborne Army (FAAA) in August. Marshall, in particular, had been displeased with the limited tactical nature of airborne plans and hoped to correct the problem by removing FAAA from the control of Army Group commanders and placing it directly under Eisenhower, who gave the command of FAAA to LG Lewis H. Brereton, former commander of Ninth Air Force.

Brereton brought an airman's point of view to his new command. His attitude had been shaped between the wars by Army Air Corps doctrine that stressed airpower's decisive qualities. Brereton, supported by Army Air Forces commander, GEN Henry Arnold, believed FAAA should be used in decisive, strategic operations and then pulled off the front to prepare for future assaults. Both Brereton and Arnold recognized airlift's importance to logistics, but believed the proper mission for FAAA was strategic assaults.

The conflict between Army ground commanders who saw airpower as a tool for victory and air commanders who believed in airpower as the tool for victory has been thoroughly explored in relation to the strategic bombing

campaign in Europe and the Pacific in works like R.J. Overy's The Air War 1939-1945, and David MacIsaac's Strategic Bombing in World War II: The Story of the United States Strategic Bombing Campaign.[1] When discussing the development and employment of airborne divisions, historians have concentrated on the paratrooper's perspective and ignored the role of troop carrier aviation. William B. Breuer's Geronimo: American Paratroopers in World War II and James A. Huston's Out of The Blue: US Army Airborne Operations in World War II, two of the best works on American airborne operations mention troop carrier units only as airborne bus drivers divisions, not as sources of conflict between Allied commanders.[2]

The purpose of this study is to examine American troop carrier aviation's dual role as both fighters and freighters during the war in Europe. It will explore the conflict over troop carrier resources between ground commanders who needed tactical airlift to solve logistic problems and air commanders who believed airborne operations could be a decisive tool for victory. The best work on this subject, Martin Wolfe's Green Light!: Men of the 81st Troop Carrier Squadron Tell Their Story , explores the difficulties caused inside a troop carrier squadron by these dual roles, but fails to examine the issue from the differing perspectives of Army and Army Air Force doctrine.[3] Before World War II, few

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[1] R.J. Overy, The Air War 1939-1945 (London: Europe Publications, 1980) and David MacIsaac, Strategic Bombing in World War II: The Story of the United States Strategic Bombing Survey (New York: Garland Publishing, Inc., 1976).

[2] William B. Breuer, Geronimo: American Paratroopers in World War II (New York: St. Martin's Press, 1989) and James A. Huston, Out of The Blue: US Army Airborne Operations in World War II (West Lafayette: Purdue University Studies, 1972).

American air leaders put much emphasis on airlift as a source of airpower and even less on the potential of airborne operations, but they did carry a unique outlook on warfare into the war. Their belief in airpower's decisive ability went beyond the Army's belief in a war of annihilation and developed into their advocacy of an airborne army that shared strategic bombing's potential to revolutionize the battlefield.

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[3] Martin Wolfe, Green Light!: Men of the 81st Troop Carrier Squadron Tell Their Story (Philadelphia: University of Pennsylvania Press, 1989).

Explanation of Terms

During the following discussion of airborne operations, several terms will be used that need explanation. The term "assault zone" may refer to a parachute drop zone (DZ), a glider landing zone (LZ), or an unprepared airstrip.

The troop carriers used different organizations. Two or three troop carrier squadrons (consisting of 36 to 80 aircraft and abbreviated TCS) formed a troop carrier group (TCG), while two or three groups formed a wing (TCW) with the Troop Carrier Command (TCC) overseeing one to four wings. During an operation, troop carrier squadrons formed into tactical formations called serials, groups of 18 to 36 aircraft, broken into several "vee of vee's" or three three-ship groups. When towing gliders, a common tactic paired two C-47's pulling one or two gliders apiece in an element. While planners tried to keep troop carrier units together, often an airborne unit's table of organization did not match a TCS's or TCG's carrying capacity, resulting in a temporary breaking up of TCS's or TCG's during assaults.

Military Ranks

CPT - Captain

MAJ - Major

LTC - Lieutenant Colonel

COL - Colonel

BG - Brigadier General

MG - Major General

LTG - Lieutenant General

GEN - General

Chapter One

A New Type of Warfare

While the American military eventually used airborne and troop carrier units more than any nation during World War II, it had trailed other military forces in creating and exploiting airborne techniques between the World Wars. Though the Soviet Union and Germany pioneered airborne development, the earliest Allied operations soon dwarfed and surpassed their predecessors' efforts. These first Allied attempts revealed a lack of doctrine, training, and coordination that nearly scuttled all future Allied airborne assaults.

American ideas for airborne operations can be traced to COL William P. "Billy" Mitchell who, as deputy head of the Air Service in France during 1918, planned a bold aerial envelopment with the help of his operations assistant, a young aero squadron commander named Lewis Brereton.[1] His plan envisioned using 1,200 Handley-Page bombers to drop 12,000 1st Infantry Division soldiers

[1] "First Allied Airborne Army," Headquarters, First Allied Airborne Army (FAAA). September 1944. Air Force Historical Research Agency, henceforth referred to as AFHRA File #168.7045-45.

near Metz before a 1919 Allied offensive. The flamboyant Mitchell doubted his more conservative superiors would accept his unusual plan. When he broached the unorthodox proposal to GEN John Pershing, the American Expeditionary Forces commander, he surprisingly agreed to mount the operation; however, the war ended before the Americans tried Mitchell's plan.[2]

Between the wars, airborne thought lay quiescent in the United States, but grew in both the Soviet Union and Germany. With experimentation and initial jumps beginning in 1931, Soviet efforts culminated with a two-battalion airfield assault during a 1935 demonstration that stunned foreign observers and previewed a new type of warfare. Though the Soviets performed large-scale assaults, Herman Goering developed the first German parachute cadres from elite police units in 1933. As Prussian Minister of the Interior, he used these parachute assault teams to conduct silent attacks on Communist cells around Berlin. Goering incorporated this unique capability into the new Luftwaffe employing team members as the nucleus for the 1st Parachute Rifle Battalion. MG Karl Student, a World War I pilot, took over Luftwaffe parachute units on 1 July 1938. Although many under his command had fled other units as misfits, Student's iron hand imbued discipline and élan in the often unorthodox, innovative paratroops. Under Student's leadership, the *Fallschirmjaegers* gained stability and eventually grew to division strength.[3]

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[2] William B. Breuer, Geronimo: American Paratroopers in World War II (New York: St. Martin's Press, 1989) 1.

[3] Breuer, 3.

German paratroops saw little action during the Polish campaign, but in October 1939 Adolf Hitler summoned Student to a conference in Berlin where Hitler revealed his plans to invade France. The *Fuehrer* ordered Student and his 7th Parachute Division to seize key bridges, airfields, and fortifications in Belgium and Holland. Central to Hitler's plans were an airborne assault on the "impregnable" Belgian Fort at Eban Emael. In retrospect, the Eban Emael operation looked more like a modern special operations attack than the mass parachute assaults later conducted in Crete, Normandy, and Holland. A 77-man assault force trained for six months to land 10 gliders on the fortress' grassy roof just before dawn on 10 May 1940. They detonated hollow-shaped charges[4] on Eban Emael's exposed cupolas and turrets, quickly overwhelming a defending force almost 10 times their size. In less than one day of fighting the team neutralized one of the world's most formidable fortifications, thus allowing the German Army to pass quickly through Belgium. [5]

The Germans followed their Low Countries operations with a minor assault on the Greek mainland early in 1941, but restricted their parachute and glider troops after a disaster at Crete, their largest airborne attack. Lacking the ships to challenge the Royal Navy for an amphibious assault, the Germans devised Operation MERKUR, a plan to seize Crete in May 1941 with 14,000 troops and 600 transport aircraft. They overcame stiff resistance by a larger

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[4] James.E. Mrazek, The Fall of Eban Emael: Prelude to Dunkerque (Washington: Luce, 1970) 29. German munitions experts developed hollow-shaped charges between the World Wars. The Germans considered them a great secret and first used them at Eban Emael.

[5] Mrazek, 29-34.

Allied force that had been warned of the upcoming invasion by ULTRA intercepts and took the island, but with over 4,000 casualties and 170 aircraft destroyed or damaged.[6] After the costly victory, Hitler believed his airborne forces had lost the element of surprise they depended upon for victory and never deployed them again on a large scale.[7]

While the Germans and Soviets demonstrated airborne capabilities in the 1930's and very early 1940's, the United States Army's limited funding precluded any similar developments. The Germans' astonishing success against Eban Emael captured American army leaders' attention and persuaded them to substitute action for thoughts and plans. The Army created the United States' first parachute platoon in late May 1940. Initial volunteers began training in June and took first jumps in August. Their first commander, Major William C. Lee, taught the aggressive spirit developed by Student, an attitude that helped his soldiers become some of the United States' best infantry units. American airborne officers, unlike the Germans, considered Crete a resounding German victory and adopted large-unit airborne assaults as the focus of United States' doctrine.[8] The Army had committed to small battalion-sized units in February

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[6] Ralph Bennett, Ultra and Mediterranean Strategy (New York: William Morrow and Company, Inc., 1989) 51-62. ULTRA was the code-name for highly secret Allied cryptographic analysis of German radio traffic that read many messages encoded by the German's supposedly unbreakable Enigma machine.

[7] McDonald G. Stewart, The Struggle for Crete 20 May-1 June 1941: A Story of Lost Opportunity (London: Oxford University Press, 1966) 476, and Airborne Operations: A German Appraisal (Washington D.C.: Office of the Chief of Military History, Special Staff, U.S. Army, October 1951) AFHRA File #K170.1302-232, 17-20.

[8] It is possible that American leaders knew about the ULTRA intercepts foretelling the German invasion of Crete that allowed British and Greek forces to

1942, but split the existing 82nd Motorized Infantry Division to form the cadres for the new 82nd and 101st Airborne Divisions that August .[9]

The Army Air Forces (AAF) entered World War II with neither the planes nor the organization required for airborne's air transport function. Air Corps policy between the wars focused on formulating the best use of limited national defense funding and made acquisition of high priority projects like the B-17 difficult during the 1930s. Not surprisingly, Air Corps leaders placed few orders for transport aircraft, reflecting the Baker Board's belief[10] that in a crisis, suitable transports could be bought "off the shelf" from civilian production lines. The Air Corps ordered 1,200 transport aircraft in 1940 when war fears grew after France fell. Most of the procurements called for the C-47 and C-53, military versions of the Douglas DC-3 commercial airliner. Other Air Corps projects took precedence, though, and none of these planes arrived before Pearl Harbor. This left the Army with 124 other transports unsuited to airborne operations. [11]

AAF transport aircraft had two missions by December 1941, supporting the AAF's logistical needs and ferrying aircraft to the British. The AAF consolidated several Air Corps Material Division transport groups under a new

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decimate the airborne assault. This knowledge could be the reason they saw a different lesson from Crete than did Hitler.

[9] Breuer, 5-6.

[10] The Baker Board, headed by former War Secretary Newton Baker, issued reports in the wake of the Army Air Corps poor mail performance in 1928. The reports discouraged the creation of a separate air force. DeWitt S. Copp, A Few Great Captains: The Men and Events that Shaped the Development of U.S. Air Power (Garden City: Doubleday & Company, Inc., 1980) 228-232.

[11] Charles E. Miller, Airlift Doctrine (Maxwell AFB, AL; Air University Press, 1988) 21.

50th Transport Wing in January 1941 to centralize control over its internal logistics. Additionally, the AAF planned to use the new wing to support airborne operations, but could not do so immediately because its crews required training in airdrop techniques and the wing's planes needed adaptation for parachutists. Airborne training progressed slowly for the next year while the wing devoted its few aircraft to more critical War Department duties, carrying more freight than all United States commercial carriers combined during the first half of 1941.[12] By November 1941, the 50th Transport Wing still struggled to provide 39 dissimilar planes for the Army's Louisiana maneuvers.[13]

While the 50th Transport Wing's airborne and cargo responsibilities grew, the AAF created Air Corps Ferrying Command in June 1941 to move aircraft overseas. As Ferrying Command formed its route system, it moved cargo, not just empty planes. When the AAF transferred the 50th Transport Wing from the Material Division to a newly formed Air Transport Command to concentrate on airborne training in April 1942, it left the Material Division and its partner, the Air Service Command, without planes to service Air Corps' supply needs. Air Service Command turned to civilian carriers to fill 50th Transport Wing's void, but AAF commander GEN Arnold realized the command's efforts duplicated Ferrying Command's work. On 1 July 1942, Arnold issued AAF General Order

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[12] Wesley Frank Craven and James Lea Cate, eds., The Army Air Forces in World War II: Volume One: Plans and Early Operations, January 1939 to August 1942 (Chicago: The University of Chicago Press, 1948) 360.

[13] Military Airlift Command, Office of History, Anything, Anywhere, Anytime: A History of the Military Airlift Command, 1941-1991 (Washington, D.C.: Government Printing Office, May 1991) 44.

No. 8 splitting all AAF cargo aircraft between two brand new Commands. The AAF combined Ferrying Command's capability with Air Service Command's demand, which created a new organization confusingly called Air Transport Command. The new Air Transport Command satisfied inter-theater and non-combat airlift requirements by transporting all War Department personnel and material except those served by troop carrier units. Eventually, Air Transport Command flew world-wide routes, moving personnel, equipment, and planes to every theater.[14]

The AAF converted the original Air Transport Command formed in April 1942, into I Troop Carrier Command (I TCC) on 20 June 1942. The I TCC absorbed the 50th Transport Wing and filled the need for intra-theater combat airlift, completely assuming responsibility for transporting parachute troops, glider units, and other air transportable echelons. [15] Unlike the new Air Transport Command that centralized and prioritized airlift under a regional Air Force commander, the new troop carrier units worked directly for local commanders through each theater's Air Force Air Service component.[16]

The late organizational and doctrinal division crippled I TCC's ability to train for airborne operations. It seemed that the moment troop carrier units

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[14] Robert Frank Futrell, Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force 1907-1960 (Maxwell AFB, AL: Air University Press, 1989) 179, and "General Orders No. 8, War Department, Headquarters of the Army Air Forces, Washington," June 20, 1942. Air Mobility Command Archives, Scott Air Force Base, ILL.

[15] "General Orders No. 8, War Department, Headquarters of the Army Air Forces, Washington."

[16] Craven and Cate, vol. 1, 362.

were formed, the AAF deployed them overseas. Though I TCC planned a four month training program for newly created TCG's, it had sent the 60th and 64th TCG's to Great Britain by September 1942 with only the most basic night formation flying skills and long-range navigation training. While a few older Army Air Force and commercial pilots had accumulated over 1000 hours, most of the 60th and 64th TCG's pilots soloed for the first time that summer and few navigators had more than 50 flying hours. [17]

A troop carrier pilot's job was more demanding than the Army initially believed. Army publications often referred to troop carrier C-47's as non-combat aircraft, much to the chagrin of their crews. Though troop carrier units flew transport planes similar to commercial airliners, their job demanded they fly, not at 350 knots miles above enemy rear areas, but unarmed and unarmored at low altitudes and slow speeds over enemy lines. Unlike the more glamorous fighter and bomber units, the C-47's did not drop lifeless iron bombs. Instead, the Army's most elite and highly trained infantry jumped from troop carrier's planes.[18]

Simply creating and training organizations to drop paratroops did not open the door for airborne operations. An Army joint air-ground exercise that took place in August 1941 in Panama showed the Army the special problems inherent to airborne operations. The coordination and planning required for Air Force bomber or fighter units paled in comparison to the staff work needed to make a simple air drop.[19] Planners needed to clear routes, warn friendly

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[17] James A. Huston, Out of The Blue: US Army Airborne Operations in World War II (West Lafayette: Purdue University Studies, 1972) 115-116.

[18] Huston, 116.

anti-aircraft units about troop carrier overflights, and procure air cover along with a myriad of other details. Later, the Allies learned their own forces could be more dangerous than the enemy's during an airborne assault.

Ambitious airborne plans for Operation TORCH, the 1942 invasion of North Africa, envisioned carrying LTC Ed Raff's 509th Parachute Infantry Battalion on a 1,500 mile overwater flight from England to North Africa on 8 November. The German assault force at Eban Emael used specially selected, highly proficient glider and tow pilots who trained as an integral team for over six months to prepare for a flight of less than 75 miles. Using many of the same crews, Operation MERKUR only covered 400 miles.[20] Allied planners hoped two months would be more than enough time to train the inexperienced 60th TCG for an overwater flight four times longer than anything undertaken by the Germans.

Two months training did not suffice. Though the 39 C-47's departed in good order from England late on the evening of 7 November, they scattered over Spain and arrived disoriented over North Africa on the morning of 8 November alone or in small groups. Elaborate, clandestine plans failed to provide radio beacon guidance for the assault force. While a few transports landed in Spanish Morocco, the C-47's that did drop their paratroops spread them far from their objectives. The few who landed together did not arrive at their target, the Tafaraoui airport near Oran, until the next morning. They straggled in on foot to find the airfield already in American hands.[22]

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[19] Huston, 115.
[20] Mrazek, 191.
[21] Breuer, 29-30.

Two subsequent small operations in North Africa went little better than the initial TORCH assault. Rather than working to improve their performance, the troop carriers had little opportunity to train with airborne units in North Africa because they augmented Army supply efforts hampered by poor North African roads.[23]

Allied commanders formed the Northwest Africa Air Force Troop Carrier Command (NAAFTCC) (Provisional) on 21 March 1943 to prepare and plan for larger airborne operations during Operation HUSKY (the invasion of Sicily). COL Ray Dunn, NAAFTCC's first commander, recognized the need to improve training before the Sicily operation and ordered two of his three available groups into training status. Dunn's successor, BG Paul Williams, agreed with Dunn's decision and managed to prevail over Army ground and air commanders who wanted troop carrier units to haul more freight in preparation for HUSKY. [24]

Troop carrier training kicked off slowly on 13 April 1943. Elaborate plans to move the 51st and newly arrived 52nd TCW's to a special training area collapsed in the wake of HUSKY's preparatory scramble. Joint training with U.S. 82nd Airborne and British 1st Airborne Divisions started near Oran on 1 June. HUSKY's attack plan called for the untested 52nd TCW to carry the U.S. 82nd

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[22] Huston, 151 and Craven and Cate, eds., The Army Air Forces in World War II, Volume Two, Europe: Torch to Pointblank, August 1942 to December 1943 (Chicago: University of Chicago Press, 1949) 56.

[23] Huston, 154.

[24] John C. Warren, Airborne Missions in the Mediterranean (USAF Historical Division, Research Studies Institute, Air University, September 1955) AFHRA File # 101-74, 26, and "Interview with Brigadier General Ray A. Dunn," Office of the Assistant Chief of Air Staff, Intelligence, Washington, D.C. 14 October 1943, AFHRA File #142.034-3, 12.

Airborne Division for parachute drops and for the more experienced 51st TCW to tow the British 1st Airborne Division for glider attacks.

NAAFTCC issued a training directive that focused on night flying before HUSKY to measure the proficiency of its C-47 crews. While NAAFTCC held a few mass night exercises simulating anticipated routes and landing zones, its crews did not thoroughly study the actual routes or assault zones. Despite these shortfalls, BG Williams reported after HUSKY that all troop carrier units had met their proficiency requirements: "All units of NAAF [North Africa Air Force] Troop Carrier Command were considered well prepared to handle commitments to which they were assigned for HUSKY operation."[25]

While troop carrier training continued in June 1943, shortages of gliders precluded adequate training for British glider pilots or additional training for the American C-47 pilots who would tow the gliders. Many glider pilots had just completed primary training. Gliders arrived three weeks before the invasion allowing little time to train the green pilots in night flying and assault landings. On average, the British pilots received just over four training hours, with only one at night, in unfamiliar American Waco gliders before their orientation ended on 20 June. For many of the glider pilots, their first and only extended flight was moving their gliders to staging fields.[26]

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[25] BG Paul L. Williams, "Report on Operations and Activities Troop Carrier Command (PROV) Including Operation HUSKY 18 May - 31 July 1943." Headquarters, NAAF Troop Carrier Command (Prov), United States Army Air Forces, North Africa. 31 July 1943, AFHRA File #613.01, 5-7.

[26] Jonathan Noetzel, To War on Tubing and Canvas: A Case Study in the Interrelationships between Technology, Training, Doctrine, and Organization, thesis, School of Advanced Airpower Studies (Maxwell AFB, AL: Air University

Reality crushed NAAFTCC's hopes. During the initial assault late the night of 9 July 1943, troop carrier aircraft flew new, complicated routes to avoid overflying naval convoys jittery about German air attacks. A preinvasion bombardment left smoke and haze over the drop and landing zones, cutting visibility and hampering already difficult night navigation. Of 125 gliders used in Operation LADBROKE, the British assault on a bridge south of Syracuse, inexperienced pilots released 65 over water and only 12 found the LZ's. The American attack, code-named HUSKY No. 1, planned to secure high ground above Seventh Army's landing beaches, but left the 82nd Airborne scattered all over the Sicilian countryside. Despite the poor drops, U.S. paratroops frustrated a German armored attack, and British glider troops seized their intended bridge on the morning of 10 July. Both Eighth Army commander GEN Bernard Montgomery and Seventh Army commander LG George Patton deemed these attacks critical to Allied success. [27]

Later Sicilian missions were more accurate, but deadlier too. Hurried planning for reinforcement drops of the 504th Parachute Infantry Battalion on 10 July 1943, codenamed HUSKY No. 2, caused poor coordination with naval and ground forces. The paratroops dropped too near friendly lines, and frightened 1st Infantry Division troops fired on the unknown invaders. Once the confusion settled, the drops gained little for the Americans. Friendly gunfire, mostly naval,

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Press, 1993) 12.

[27] BG Paul L. Williams, "The Airborne Assault Phase of the Sicilian Campaign." Remarks at Headquarters, VIII Air Support Command. 17 August 1943, AFHRA File #532.452A, 2-3.

downed 23 C-47's on their escape route and prevented an additional 99 from flying the next day. FUSTIAN, a final airborne attack on 13 July suffered the same result when friendly fire destroyed 11 C-47's and damaged many more.[28]

After Operation HUSKY, troop carrier leaders possessed a more realistic picture of their capabilities. Their initial satisfaction over training in North Africa paled when matched with the difficult night formation flying and navigation and the detailed planning required for airborne operations. Rather than condemn the aircrews for scattering the paratroops, BG Williams' after-action report criticized ambitious plans based "entirely too much on precision." [29] He criticized planners for selecting small, rugged glider LZ's beyond the proficiency of British glider pilots. Unexpectedly high winds and poor visibility made the LZ's even more dangerous. Williams wanted to simplify future operations with easier routes and larger drop zones. He blamed his crew's navigation problems on the Navy for imposing routes that required many overwater turns based on dead reckoning.

Neither troop carrier planners nor commanders comprehended wartime operational requirements, because they lacked the experience to envision realistic airborne assaults. Williams' comments reflect the naive state of their planning before HUSKY. He said,

> "Perhaps more attention could have been directed during the training phase to the difficulties that, although unpredicted, may

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[28] Craven and Cate, vol. 2, 454, BG Paul L. Williams, "The Airborne Assault Phase of the Sicilian Campaign." AFHRA File #532.452A, 4.

[29] Memorandum. NAAF Troop Carrier Command, "Subject: Training prior to OPERATION HUSKY." 20 July 1943, AFHRA File #611.719, 105.

[30] Memorandum. NAAF Troop Carrier Command, "Subject: Training prior to OPERATION HUSKY." 20 July 1943, AFHRA File #611.719, 105.

> still possibly occur, and some evasive means developed to overcome them. The mission was planned expecting ideal conditions of weather, no interference by other friendly forces, and excellent navigational aids." [31]

Few military operations can ever expect perfect conditions, communications, or execution.

Senior British and American air leaders took less pity on the airborne employments. Though they considered all the assaults except HUSKY No. 2 tactically successful, over 60 percent of the paratroops landed off the drop zone and friendly fire shot down 25 C-47's, besting the German and Italian total of 20. Northwest Africa Air Force Tactical Air Force commander Air Vice Marshal Arthur Coningham complained the "soldier's air operations" were poorly planned from an air point of view. Northwest Africa Air Force commander LG Carl A. Spaatz agreed, calling for more joint training and better aircraft recognition training; he also worried about the cost of airborne operations if the Allies could not achieve surprise.[32]

A report that shaped airborne's direction for the rest of the war confirmed Spaatz's and Coningham's doubts on 20 July 1943. HUSKY's commander, GEN Eisenhower appointed a special board made up of Airborne Command[33] and troop carrier officers to review HUSKY's airborne attacks. Their report attacked troop carrier's deficiencies and emphasized the need for [illegible] planning and

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[31] Memorandum. NAAF Troop Carrier Command, "Subject: Training prior to OPERATION HUSKY." 20 July 1943, AFHRA File #611.719, 106.

[32] Craven and Cate, vol. 2, 445.

[33] Airborne Command, formed in March 1942, supervised parachute training at Camp MacKall, NC.

training. They felt planning done by a single headquarters would result in better coordination between air, ground, and naval forces simplifying troop carrier's task and eliminating fratricide. The report advised placing troop carrier directly under the air commander in chief who would retain final mission authority until troops landed. The board also recommended improved flying training emphasizing night navigation and formation flying that culminated in joint full-scale rehearsals whenever possible.[34]

Though HUSKY's after action report showed the way to improve airborne operations, Army leaders like Eisenhower and LG Lesley J. McNair, commander of Army Ground Forces in the United States, both questioned the utility of large-scale assaults using airborne divisions after the Sicilian invasion. Like the Germans, who had scheduled no more airborne assaults after their heavy losses during the invasion of Crete, both Eisenhower and McNair feared high airborne casualties. After Sicily, the future Supreme Allied Commander, Eisenhower, believed the largest practical airborne unit should be a regimental combat team.[35]

During the fall of 1943, an airborne assault in New Guinea demonstrated the potential of bold airborne operations to Allied leaders. GEN Douglas MacArthur, Allied Southwest Pacific commander, and his air deputy LG George C. Kenney used COL Paul H. Prentiss' 54th TCW to carry elements of the 503rd Parachute Infantry Regiment to seize a Japanese airfield near Nadzab, New

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[34] Craven and Cate, vol. 2, 456, and Miller, 88.
[35] Huston, 169.

Guinea on 5 September 1943. Once the paratroopers secured the airfield, 54th TCW ferried the 7th Australian Division into Nadzab. From there, the Australians swiftly reduced Lae, a Japanese stronghold, 21 miles to the southeast. [36]

Better preparations for new Mediterranean operations reinforced the impressions of airborne's New Guinea success. While planning for the invasion of Italy, NAAFTCC, now designated XII TCC (Provisional), improved its navigation by training in Tunisia and Sicily. Work began on 22 July 1943 and climaxed in joint exercises on 28 and 31 August. Naval ships displayed precoordinated navigational signals that aided the aircraft on routes from Tunisia to Malta that approximated those planned for Operation AVALANCHE, the Italian invasion. To solve problems with acquiring the assault zones, 82nd Airborne and XII TCC created pathfinders on a trial basis. Schooled like heavy bomber crews who had aided RAF night bombing attacks, 52nd TCW crews worked with specially trained paratroop teams that used radio beacons, gasoline fires, and Krypton lights to guide serials into the assault zones.[37]

Early operational plans for AVALANCHE overshot the airborne or troop carrier units' improved capabilities. Planners discarded their first airborne scenario in late August after they discovered their mountain pass assault zones above Salerno were too rough.[38] The second airborne plan, Operation GIANT

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[36] Breuer, 105.

[37] BG Paul L. Williams "A Report of TCC Activities Including The Italian Invasion (1 Aug - 30 Sept 1943)." Headquarters, XII Troop Carrier Command (Prov), United States Army, Sicily. 1 October 1943, AFHRA File #613.01, and Breuer, 116.

ONE, called for the 82nd Airborne Division to seize and hold a road junction 40 miles behind the beachhead at Salerno. The 82nd Airborne Division commander, MG Matthew Ridgway, forced the cancellation of GIANT ONE when he expressed doubts about the ability of his division to hold out until relieved.[38]

An even more unrealistic operation, code-named GIANT TWO, sprang from secret armistice negotiations when the Italians demanded an airborne assault to secure Rome from the Germans as a precondition for their surrender. The 15th Army Group in Algiers ordered Ridgway to capture three airfields north of Rome on 8 and 9 September 1943 and seize the city. Planners in Algiers had not consulted Ridgway or any other airborne or troop carrier officer about the assault. The mission required XII TCC C-47's to fly 250 miles behind enemy lines through heavy flak and drop 82d Airborne where it needed to traverse 20 miles to reach Rome against heavily armed German divisions. Attempts to convince the 15th Army Group commander, Field Marshal Sir Harold Alexander, to cancel GIANT TWO on 3 September failed. The 15th Army Group Headquarters promised the Italians would light the way to the fields north of Rome and provide air cover for transports. To answer doubts about the Italians' sincerity, Allied commander Eisenhower sent BG Maxwell Taylor, 82nd Airborne Division's artillery commander, and COL William T. Gardiner, commander of a troop carrier squadron, on a clandestine mission to Rome on 7 September to

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[38] BG Paul L. Williams "A Report of TCC Activities Including The Italian Invasion (1 Aug - 30 Sept 1943)." Headquarters, XII Troop Carrier Command (Prov), United States Army, Sicily. 1 October 1943, AFHRA File #613.01.

[39] Breuer, 115.

assess the situation. Taylor and Gardiner discovered the Germans held the drop zones supposedly secured by the Italians. Taylor managed to cancel the operation just before the 82nd departed Sicily.[40]

When the amphibious attack at Salerno ran into trouble on 12 September, Fifth Army commander LG Mark W. Clark, ordered his precarious beachhead reinforced by two airborne regimental combat teams. The previous month's training and coordination paid off when units prepared for GIANT TWO shifted to their new assignment. Ten hours after Clark ordered the operation, the first pathfinder aircraft released its load. Though maintenance difficulties prevented subsequent serials from arriving together, these first reinforcements and similar drops the next night provided 3,400 troopers and a much needed psychological boost at Salerno. Friendly fire did not damage a single C-47, indicating improved coordination by the XII TCC staff and better recognition training for naval and ground units.[41]

The operations at Nadzab and Salerno showed two aspects of airborne warfare. Nadzab proved that airborne operations, when properly planned and executed, could have a decisive battlefield result. The Salerno drops revealed that flexible airborne operations were a reality with proper training and coordination. With these successes came a note of caution; the canceled Operations GIANT ONE and TWO reminded American airborne and troop

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[40] Breuer, 116-119.
[41] Breuer, 133 and Huston, 168-169.

carrier leaders that, though their own performance was improving, most ground commanders had little idea how to use their airborne arm.

In October 1943, BG Ray A. Dunn, commander of 51st TCW, summarized this anxiety. He complained that because troop carrier units flew cargo planes, some commanders believed hauling cargo was troop carrier's primary, not secondary job. Though troop carrier units had time for airborne training in the Mediterranean, their primary job still remained moving units and hauling freight when not employed dropping troops . These assignments reduced the training necessary for complicated airdrop operations. This struggle over whether to use troop carrier aircraft for training or logistical support foreshadowed arguments that would resurface during the summer of 1944. As if to support Dunn's claims, LG Clark praised the operation to drop troops at Salerno, but saved his highest accolades for troop carrier's medical evacuation flights.[42]

Dunn asserted that the proper planning and close coordination required between ground and air forces for airborne operations could only be handled by those involved in these missions. "You cannot have the task force commander and his planning staff sit there and make the plans for an airborne operation -- because they are too complicated and the only people who understand them are the people who take part in them."[43]

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[42] "Interview with Brigadier General Ray A. Dunn. , Office of the Assistant Chief of Air Staff, Intelligence, Washington, D.C. 14 October 1943, AFHRA File #142.034-3.

[43] "Interview with Brigadier General Ray A. Dunn. , Office of the Assistant Chief of Air Staff, Intelligence, Washington, D.C. 14 October 1943, AFHRA File

In defense of Army commanders and staff officers, they had little official guidance in creating aerial assault plans since few Army publications had anything to say about airborne operations. Field Manual 100-5, "Operations," published in May 1941 told only that airborne warfare brought surprise to the battlefield, and airborne troops would probably seize airfields and need relief quickly to avoid destruction. The manual had even less to say about the aircraft that might transport air landing or parachute troops. [44] Field Manual 100-20, elevated the Army Air Forces to a co-equal status with ground forces under theater commanders in July 1943. Even though the manual freed air forces from the ground commander's control, it made little mention of troop carrier, save that these units carried paratroops and cargo. Its description of troop carrier's function did not differ much from the one given Air Transport Command, though the two performed very different duties. Even Eisenhower would confuse the two Commands as late as 1944.[45]

The first doctrinal guidance for airborne forces came in October 1943 when the War Department issued Training Circular No. 113, "Employment of Airborne and Troop Carrier Forces." While the circular covered planning and execution in great detail, the authors placed several important principles on the

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#142.034-3.

[44] Field Service Regulation, "Operations Field Manual 100-5," War Department, Washington D.C. 22 May 1943, pars. 996 -1029.

[45] Huston, p. 52. and Martin Wolfe, Green Light!: Men of the 81st Troop Carrier Squadron Tell Their Story (Philadelphia: University of Pennsylvania Press, 1989) 440. Wolfe reports being embarrassed when Eisenhower congratulated Air Transport Command, a non-combat unit, instead of Troop Carrier Command, a combat unit, for the D-Day airdrops.

document's first page for emphasis. Its most important idea established airborne and troop carrier units as theater assets whose employment should be decided by the theater commander. The planning fiascoes at Sicily convinced the War Department that control of airborne operations belonged to the theater's air commander until airborne forces landed and became the responsibility of the ground forces commander. Other principles reminded commanders to plan their operations early enough to coordinate with all affected land, sea, and air forces and stressed the importance of training and practice exercises for troop carrier and airborne units.[46]

The circular met wide approval. Army Chief of Staff Marshall ordered copies distributed throughout the United States and to overseas theater commanders. Both airborne and troop carrier commanders in the Mediterranean approved the circular, though with a few reservations. MG Ridgway agreed with the majority of the publication, but recommended that the airborne division be employed whole since it trained as a team and was considerably smaller and more lightly armed than normal infantry divisions. During World War II, a standard American infantry division deployed 15,000 men that included at least one armored and one heavy artillery battalion. Airborne divisions numbered 8,500 men with light artillery and no integral armored units. Ridgway represented airborne commanders who wanted to have their units employed en masse rather than piecemeal. Circular No. 113 supported their concerns about

[46] Training Circular No. 113, "Employment of Airborne and Troop Carrier Forces." War Department, Washington D.C. 9 October 1943, AFHRA File #168-7045-49, and Huston, 54.

an airborne division's light armament and doubts about supplying it by air by stating that airborne should only be employed where it could be relieved within three days.[47]

Though Training Circular No. 113 clarified doctrine for airborne units, another Army publication, Field Manual 101-10, "Staff Officers' Field Manual, Organization, Technical, and Logistical Data," published just after Training Circular No. 113, expressed the main anomaly about the use of troop carrier units. FM 101-10 defined a troop carrier unit's primary duty as carrying combat troops and their equipment into the battle area and gave it a secondary job of maintaining supply to units in the combat zone.[48] Balancing these missions with the requirements for training demanded in Training Circular No. 113 became the dilemma for European troop carrier aviation for the remainder of the war.

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[47] COL J.T. Dalbey, Chief of Staff, Airborne Command. "Airborne Troops in a Landing Assault." Address in "Minutes of a Conference on Landing Assaults, 24 May - 23 June 1943, U.S. Assault Training Center, European Theater of Operations." 28 May 1943, AFHRA File #502.44, 11, and Huston, 56.

[48] Huston, 55.

Chapter Two

Troop Carrier's Dual Role

On D-Day, after IX TCC's C-47's cleared the drop zones, a map that illustrated where each plane's load landed "look[ed] as though a pepper shaker had been waved three or four times over each zone."[1] The IX TCC scattered the 82nd and 101st Airborne Divisions all over Normandy, instead of bunching them in the tight groups critical for tactical success. Judged solely by its drop scores, American troop carrier aviation had failed again.

Just before D-Day, Allied commanders believed troop carrier units had fixed the problems that plagued their early assaults. To use an American football metaphor, after the Italian invasion, troop carrier forces went into the halftime locker room bloodied, but not beaten. The Americans entered the game much like a Brazilian soccer team trying to play American-rules football. In short, they did not understand the game. After costly Sicilian operations opened their eyes, troop carrier units finally scored just before the half in Italy and New

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[1] John C. Warren, Airborne Operations In World War II, European Theater (Maxwell AFB, AL: USAF Historical Division, Research Studies Institute, Air University, September 1956) AFHRA File # 101-27, 58.

Guinea. The carriers spent the fall of 1943 and winter of 1944 planning and training for the cross-channel invasion.

Two years before Normandy, Allied leaders placed the responsibility for transport production and airlift on the Americans after discussions between GEN Arnold, U.S. Army Air Forces commander, and Sir Charles Portal, British Chief of Air Staff. Britain devoted most of its resources to the strategic bombing campaign.[2] The only British unit committed to airborne operations, No. 38 Group, flew bomber type aircraft that mainly towed gliders and were even less suited to airdrop than the lumbering C-47's.[3]

Equipping troop carrier units fell behind other American priorities. The AAF accepted 23,414 fighters and bombers in 1942, but only 1,985 transports, a ratio of nearly 12:1. While the ratio improved to 7.5:1 in 1943, factories still delivered 52,367 fighter and bombers, compared to 7,013 transports. Even though the transport numbers seem impressive compared to prewar inventories, the demand for their services increased faster than production. European troop carrier needs competed for C-47's and C-46's with training by I TCC, Pacific Theater troop carrier operations, Air Transport Command, the Navy, and the Allies. The aircraft assigned to TCG's served not only to train the group's crews, but also had to train the newly formed airborne divisions. A shortage of qualified instructors slowed crew training[4], which in turn slowed airborne training. Though

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[2] Craven and Cate, vol. 1, 622.

[3] Warren, Airborne Operations, 4.

[4] A C-47 crew consisted of a pilot, co-pilot, radio operator, crew chief and for airdrops, a navigator in most planes. The crews usually trained and flew together, though substitutions sometimes occurred.

Airborne Command wanted newly created TCG's in the United States devoted to airborne training, their inherent flexibility allowed the AAF to call on them to haul cargo.[5]

The lack of available troop carrier aircraft and crews shaped airborne plans by the Operation OVERLORD's[6] Chief of Staff to the Supreme Allied Commander (COSSAC), British LG Frederick E. Morgan, more than any adhesion to a particular doctrine or vision. The Combined Chiefs of Staffs' first cross-channel invasion estimate in May 1943 required 634 troop carrier planes, eight and a half U.S. TCG's[7] and seven British squadrons. When COSSAC's revised plan in July enlarged the assault to two-thirds of a British airborne division and seven U.S. battalions, the American troop carrier requirement grew to 13 1/2 TCG's or 799 aircraft.[8]

C-47 aircraft shortages in 1943 limited troop carrier training and raised Allied concerns about the upcoming cross-channel invasion. Fearing the Americans might fall four or five TCG's short of the 13 1/2 required, COSSAC held discussions in August about the feasibility of using RAF Bomber Command crews to augment troop carrier operations, but believed the training time required for such a task would be prohibitive.[9] During August's QUADRANT

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[5] Huston, 90-97, and Craven and Cate, vol. 1, 623-624.

[6] During the discussion, OVERLORD refers to the entire cross-channel invasion, while NEPTUNE refers to the assault phase of OVERLORD.

[7] Before OVERLORD, a IX TCC group had 52 to 80 planes divided into three squadrons. After OVERLORD the TCG's grew to over 100 planes.

[8] Warren, Airborne Operations, 2.

[9] "Minutes of Meeting Held at Norfolk House on August 10th to Discuss Future Policy Relating to the Employment of Airborne Forces." 10 August 1943, AFHRA File #505.10-6.

Conference in Quebec, Allied commanders eliminated the feared airlift shortfall by agreeing to make it up by transferring Mediterranean TCG's to Great Britain. A December planning conference in Cairo finalized OVERLORD's troop carrier commitment at 13 1/2 TCG's, a force designated IX Troop Carrier Command (IX TCC).[10]

Formed in October 1943, the newly created command grew rapidly from a six-man headquarters and a single TCG to over 1,400 planes.[11] Though BG Benjamin Giles originally commanded IX TCC, BG Williams, commander of NAAFTCC and XII TCC (Prov), replaced him on 25 February 1944 to oversee OVERLORD's intensive preparations. First assigned in 1942 to Eighth Air Force, a bomber unit, by the spring of 1944 Williams had earned the respect of both the airborne and troop carrier rank and file. Most importantly, he worked well with 82nd Airborne Division commander MG Ridgway, MG Taylor (recently assigned as the 101st Airborne Division commander), and COSSAC's head airborne planner, BG James Gavin.[12]

As plans for the assault force's size solidified, a command structure took shape. At the QUADRANT Conference, the Allies appointed Air Marshall Trafford Leigh-Mallory, formerly head of Britain's Fighter Command and the

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[10] The British also committed 150 C-47's from their Transport Command to augment NEPTUNE. Warren, Airborne Missions, 5. By D-Day, IX TCC's 1,400 aircraft comprised the single component of Eighth and Ninth Air Force's combined 4,000 planes.

[11] "Tactical and Non-Tactical Operations During The Final Phase of the War in Europe including Operation "VARSITY," Headquarters IX Troop Carrier Command. 20 May 1945, AFHRA File #546.3069A.

[12] Breuer, 186-187.

head air planner for COSSAC, as tactical air commander in chief for OVERLORD. MG Lewis H. Brereton, a veteran air commander in four theaters, led the American contingent, Ninth Air Force, established on 16 October 1943. After much discussion over the extent of Leigh-Mallory's jurisdiction, Ninth Air Force fell under his Allied Expeditionary Air Forces (AEAF), in November 1943.[13]

The IX TCC occupied an unusual place in the chain of command. As Ninth Air Force's airlift element it received its administrative and logistical support from Ninth Air Force, but Leigh-Mallory's interest and control over airborne operations challenged Brereton's authority. Leigh-Mallory met with Brereton on 6 December 1943 and worked out a relationship that placed IX TCC and British No. 38 Group under the direct operational control of AEAF.[14]

For the first time in Europe, the theater commander's air commander planned, coordinated, and supervised airborne operations. Leigh-Mallory's arrangement ruffled the feathers of American air commanders reluctant to release control of their units, but achieved the unity of command called for in Training Circular No. 113 and several after-action reports for airborne forces. In December 1943, AEAF assumed complete responsibility for planning and coordinating NEPTUNE's aerial assault with 21 Army Group and other command

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[13] Craven and Cate, vol. 2, 735-746 discusses Leigh-Mallory's desire for increased administrative control over Ninth Air Force. American commanders, especially Brereton, were reluctant to cede control to Leigh-Mallory.

[14] "Minutes of the Meeting held at A.E.A.F. Headquarters, Stanmore on 9th December, 1943 to Discuss the Employment of Airborne Forces in Continental Operations," and "Minutes of the Meeting held at HQ. A.E.A.F. on 19 February 1944 to Discuss and Agree the Requirements of a Joint Troop Carrier Command Post and Operations Room." AFHRA File #505.27-11.

agencies. Leigh-Mallory established and oversaw an Airborne Air Planning Committee made up of the principal airborne and troop carrier commanders to facilitate planning. He also created the first consolidated Troop Carrier Command Post to direct training exercises and the NEPTUNE invasion. [15]

Simply placing airborne operations under AEAF did not guarantee realistic airborne plans; not everyone agreed about the proper employment of airborne assaults. U.S. Army Chief of Staff GEN George Marshall believed airborne operations had more potential than NEPTUNE seemed to demand. Marshall constantly sought new tactics and instigated several grandiose cross-channel invasion plans. With the support of Arnold in late 1943, he tried to convert OVERLORD from an amphibious to an airborne operation. Marshall and Arnold sent a delegation to Eisenhower on 16 February 1944 that recommended dropping airborne divisions near Évreux, halfway between Normandy and Paris, to secure communications lines, seize airfields, and harass the German rear.[16]

Eisenhower assembled his staff and considered Marshall's proposal before rejecting it. The Supreme Headquarters, Allied Expeditionary Forces (SHAEF) commander tactfully suggested his reasons came from a need to concentrate on OVERLORD's central problem, the initial landing. Privately, however, he based his decision upon concerns about airborne's ability to survive

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[15] "Minutes of the Ninth Meeting of the Airborne Air Planning Committee held at Bentley Priory at 1500 Hours on 28th April, 1944." AFHRA File #505.27-11.

[16] Eric Larrabee, Commander in Chief, Franklin Delano Roosevelt, His Lieutenants, and Their War (New York: Simon & Schuster Inc., 1987) 151.

for long in exposed positions, doubting the air forces' ability to support a deep thrust and the ground forces' capacity to break out of the beachhead area. Eisenhower apologized to Marshall for adopting a conservative course of action, but committed to using airborne forces for the time being to attain tactical rather than strategic goals. [17] While Allied commanders in Europe tended to downplay the strategic potential of airborne forces, Marshall's plan epitomized the belief of Air Staff and airborne officers who thought airborne could do more. They would raise their voices again after OVERLORD.

Not all Allied commanders deemed an airborne assault's gains worth its potential costs. In May 1944 Allied plans called for the 82nd and 101st Airborne Divisions to seize a large area west of UTAH Beach and seal the area from German attacks. Leigh-Mallory feared horrendous American airborne casualties and asked the 21 Army Group commander, Field Marshal Bernard L. Montgomery, to cancel their airdrops.[18] GEN Omar Bradley, the U.S. First Army commander, threatened to cancel the UTAH Beach landings unless the airborne plans stood. When Montgomery sided with his American ground commander, Leigh-Mallory appealed twice to Eisenhower, who respected Bradley's request to keep the drops. Leigh-Mallory's final plea particularly troubled Eisenhower, who visited the airborne troopers just before they departed on 5 June 1944. [19]

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[17] Huston's extensive discussion of Marshall and Arnold's plan, known as the "Army Air Forces Plan," can be found on pp. 171-173. A complete reproduction of correspondence between Marshall and Eisenhower on the plan is reproduced in Appendix XII.

[18] Leigh-Mallory had fewer doubts about British missions near Caen.

[19] David Eisenhower, Eisenhower: At War 1943-1945 (New York: Random House. 1986) 249-250 and 277-278. Leigh-Mallory formally apologized to

While NEPTUNE's planning progressed, American airborne and troop carrier units began to arrive and train in the United Kingdom. The IX TCC's task depended on improving each TCG's proficiency, practicing the assault with the 82nd and 101st Airborne Divisions, and perfecting pathfinder operations begun in Italy. While the airborne divisions arrived in Great Britain almost combat-ready, much work remained for the troop carriers.

Both IX TCC and AEAF formulated detailed training standards for the troop carrier groups. Commanders placed heavy emphasis on night formation flying, accurate navigation, and precise time control. Their standards demanded arrival at the assault zone within one minute of schedule and one mile of accuracy. [20] The aggressive standards placed heavy demands on troop carrier crews who relied on basic navigation equipment and dead reckoning while flying in huge formations at night.[21] Though radio and radar navigation aids helped, they proved difficult to operate even by highly trained pathfinder crews. At a C-47's planned drop speed, two miles slip beneath the aircraft each minute.

Eisenhower after NEPTUNE for burdening him with the decision so close to D-Day. The British general's constant pestering of Eisenhower reduced his usefulness and Leigh-Mallory was sent to India three months after NEPTUNE when AEAF was abolished.

[20] "Training Program, Troop Carrier - Airborne Combined Training." Supreme Headquarters Allied Expeditionary Force. 6 February 1944, AFHRA File #505.3C-1.

[21] Dead reckoning navigation relies on use of the compass and clock. In 1944, pilots lacked the ability to determine the necessary wind drift correction. A one degree compass error, be it from pilot error or excessive winds, translates to a one mile course deviation for each 60 mile flown. Most American D-Day paratroops landed within five miles of their planned assault zones, representing an error of two and a half minutes or two to three degrees.

When a crew became lost and disoriented, as many did early on 6 June 1944, four or five miles passed very quickly.

To attain the training standards, the 53rd, 50th, and 52nd TCW's each faced different problems based on their groups' experience. The 53rd TCW, the first complete wing assembled in Great Britain, had few problems with four TCG's originally trained by 50th TCW. It concentrated on glider training with the 101st Airborne Division, but continued parachute work. The wing performed well in training exercises and in April 1944, AEAF deemed it quite ready for NEPTUNE.[22]

After sending its initial TCG's to 53rd TCW, the 50th TCW Headquarters received the theater's most inexperienced groups. One, the 442nd TCG, activated in September 1943, did not receive its C-47's until December 1943. While other 50th TCW groups fared much better, the wing faced the IX TCC's toughest training load, struggling to meet basic proficiency standards made more difficult by heavy joint exercise commitments.[23]

The veteran 52nd TCW transferred from the Mediterranean in March 1944. The wing's average pilot time exceeded 1,500 hours and many flight leaders had over 2,000 hours. In several groups, 80 or 90 percent of the crews had combat time. The wing's only addition, the 315th TCG, had been transferred and divided several times since it arrived in Great Britain in

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[22] Warren, Airborne Missions, 22.

[23] MAJ Roderick M. Stewart, Training Branch, AEAF "Inspection Report on 50th Troop Carrier Wing to Chief of Training, Allied Expeditionary Air Force." 11 April 1944, AFHRA File #505.30-1 and Warren, Airborne Missions, 23.

November 1942. Now, the group needed extensive training in all areas. For all but the 315th, wing training required sharpening certain skills gone stale since the Italian operations. [24]

When AEAF's Airborne Air Planning Committee convened in December 1943, Leigh-Mallory's first initiative directed joint airborne and troop carrier training.[25] The IX TCC agreed wholeheartedly. Even before AEAF's directive, BG Giles had planned battalion exercises with 101st Airborne Division.[26] For geographic convenience and continuity, the AEAF paired each TCW with an airborne division. The 50th and 53rd TCW's trained in glider and parachute exercises with the 101st Airborne Division. Bad weather at northern training bases precluded glider operations for the 52nd TCW and its partner, the 82nd Airborne Division, and limited them to parachute exercises until the RAF opened southern airfields later in the spring of 1944.[27]

The XII TCC's operational experiments in Italy convinced troop carrier leaders of the value of pathfinder crews. Allied insistence on night airdrops to avoid German flak and aircraft meant the airborne assault depended on accurate

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[24] MAJ Roderick M. Stewart, Training Branch, AEAF "Inspection Report on 52nd Troop Carrier Wing to Chief of Training, Allied Expeditionary Air Force." 11 April 1944, AFHRA File #505.30-1.

[25] "Minutes of the Meeting held at A.E.A.F. Headquarters, Stanmore on 9th December, 1943 to Discuss the Employment of Airborne Forces in Continental Operations." AFHRA File #505.27-11.

[26] Howland, LTC O.W., IX TCC Adjutant, Training Directive. HQ IX Troop Carrier Command. "Subject: Joint Training of Troop Carrier Units with Airborne Units." 4 November 1943, AFHRA File #546.712.

[27] BG Paul L. Williams, Memorandum to Commanding General AAF, Washington D.C. "Troop Carrier Command Training Program for Operation Neptune." 14 June 1944, AFHRA File #546.452G.

pathfinder missions. Rather than dispersing limited radar equipment and personnel, IX TCC decided to form a separate pathfinder unit in February 1944. This school, formed in early February 1944, taught IX TCC navigators to use the RAF Bomber Command's Gee system.[28] As SCR-717 radar-equipped C-47's arrived in Great Britain from the Mediterranean, the school expanded its curriculum to include both systems.[29] The day after BG Williams took command of IX TCC, he selected LTC Joel Crouch, XII TCC's pathfinder pioneer, to be the school's new commandant.[30]

Crouch trained 52 crews drawn equally from each TCG before D-Day. He demanded close cooperation between the troop carrier crews and the over 300 paratroops sent to the pathfinder school at North Witham. Each crew trained with a specific paratroop stick[31] creating a rapport that allowed both sides to improve airborne operations. Working together, pathfinders refined the Rebecca-Eureka radio navigation aid, making the cantankerous system a useful tool for following serials to locate drop zones. After fixing early difficulties during the mass exercises, the pathfinder crews returned to their respective groups to prepare for D-Day. [32]

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[28] The Gee system triangulated three radio signals from Britain to determine an aircraft's location.

[29] The SCR-717 radar provided a crude image of prominent terrain features and worked best when mapping a coastline.

[30] BG Paul L. Williams, Memorandum to Commanding General AAF, Washington D.C. "Troop Carrier Command Training Program for Operation Neptune." 14 June 1944, AFHRA File #546.452G and Warren, Airborne Missions, 24-25.

[31] A parachute stick consists of trooper's who jump from a plane together on a single pass over the drop zone.

[32] Breuer, 187-188.

Joint exercises, the final ingredient for airborne training, took time to coordinate. Though command-wide training began in November 1943, BG Giles reported slow progress through the winter months. Many units would not arrive until March, and there still remained a shortage of trained glider pilots due to school backups in the United States.[33] In February, IX TCC could not mount an effective operation; AEAF recognized the problem and, together with IX TCC, planned 38 wing and three command exercises beginning on 15 March.[34]

Allied commanders placed heavy emphasis on the exercises. The IX TCC canceled an early exercise, BIZZ I, when it discovered IX TCC aircraft radio antennas fouled British parachutes and harnesses. The exercise cancellation drew an excited flurry of reprimands and apologies that sent repercussions all the way up to Eisenhower. The IX TCC removed the offending antennas and rescheduled the exercise.[35]

The IX TCC's final exam, Exercise EAGLE, the war's most realistic Allied airborne rehearsal, received general acclaim from the Allied commanders who observed the 12 May 1944 drops. EAGLE tested elements of each troop carrier group and airborne division by simulating the type of routes, drop zone markings, and sequence of events planned for NEPTUNE. Leigh-Mallory and Williams both stated their satisfaction with the exercise's results, even though IX

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[33] Noetzel, pp. 13-14.

[34] BG Paul L. Williams, Memorandum to Commanding General AAF, Washington D.C. "Troop Carrier Command Training Program for Operation Neptune." 14 June 1944, AFHRA File #546.452G.

[35] MG Hoyt S. Vandenberg, Deputy Air Commander-in Chief, AEAF, Memorandum to Commander-in-Chief, A.E.A.F. "Subject: Exercise BIZZ." 5 April 1944. AFHRA File #505.89-22.

TCC's weak links, the 315th and 442nd TCG's, got lost and bungled their drops. After several later training missions, AEAF and IX TCC felt that the 315th and 442nd TCG's performance had improved enough to deem IX TCC ready for NEPTUNE. [36] An optimistic Williams believed 90 to 100 percent of the paratroopers would land on their intended DZ's. While EAGLE benefited from only minor haze and low winds, the Allied commanders' sanguinity disregarded the bad weather or high winds that had broken up previous exercises.[37]

Much as German defenses dominated the average paratrooper's fears on D-Day, defensive preparations had proved less a threat to previous airborne attacks than poor planning, training, darkness, and the weather. Allied planners had corrected the first three obstacles during the long preparations for OVERLORD. Though IX Troop Carrier Command's 933 C-47's and 103 gliders made up a force four times larger than the combined HUSKY No. 1 and LADBROKE assaults, the airborne fleet efficiently assembled complicated, yet orderly formations without incident. Well trained in night procedures from their numerous exercises, the Americans had devised no solutions for clouds. After

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[36] BG Paul L. Williams, Memorandum to Commanding General AAF, Washington D.C. "Troop Carrier Command Training Program for Operation Neptune." 14 June 1944, AFHRA File #546.452G, "Minutes of the Tenth Meeting of the Airborne Air Planning Committee held at Bentley Priory at 1500 Hours on 18th May, 1944." AFHRA File #505.27-11 and Warren, Airborne Missions, 25-26.

[37] IX TCC's training standards required a minimum of 3 miles visibility with a 2000 foot cloud base, no more than 60 percent cloud coverage or 20 mile per hour winds for parachutists, 25 mph for gliders. "Training Program, Troop Carrier - Airborne Combined Training." Supreme Headquarters Allied Expeditionary Force. 6 February 1944. AFHRA File #505.30-1 and Warren, Airborne Missions, 26.

smoothly transiting southern England, the armada collided with a cloud bank just prior to the French coast and emerged in disarray.[38] Anti-aircraft fire further unraveled squadrons desperately searching for their drop zones. Despite the flak, few C-47's took evasive action. While weathering the anti-aircraft fire, the troop carriers found their pathfinders had had difficulty finding the proper drop zones and had only begun to set up their radio, radar, and light beacons. When the formation reached the assault zones, only six of 20 serials managed somewhat compact drops on the proper zone.[39]

Scattering the paratroopers across the French countryside had a terrible effect on their tactical plan. Less than 10 percent of the 13,428 82nd and 101st Airborne Division troopers found themselves on their intended drop zones. Most landed within five miles, but overlapping drops mixed units and the thick *bocage* country prevented many from knowing their exact location to secure their planned objectives. Despite their confusion, the paratroops formed into ad hoc bands that harassed and disrupted the Germans behind UTAH Beach. Several accounts of the Normandy drops implied the disarray confused the Germans more than the Americans and kept the Germans off balance, preventing a counterattack.[40] While the drop accuracy disappointed Bradley, he appreciated the security the paratroopers gave the UTAH beachhead. American losses at

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[38] BG Paul L. Williams, Commanding General, IX Troop Carrier Command. "Report of Operation NEPTUNE to Commanding General Army Air Force." 13 June 1944. AFHRA File # 546.452G.

[39] Huston, 182. Miller, 100.

[40] Craven and Cate, eds., The Army Air Forces in World War II, Volume Three, Europe: Argument to V-E Day, January 1944 to May 1945 (Chicago: University of Chicago Press, 1951) 188, and Warren, Airborne Missions, 29-30.

UTAH Beach, expected to be among NEPTUNE's worst, were only four percent.[41]

A few histories, particularly those written by airborne troopers, blame troop carrier crews' cowardice for the poor drops early on 6 June 1944.[42] Paratroopers scorned those who were not jump qualified, and the troop carrier crews' vision, navigational skills, and supposed cowardice often served as the butt of their sarcasm. The same crews accused of cowardice during the morning drops flew steadily into horrendous flak 19 hours later during glider resupply missions. After the C-47's encountered the cloud bank on D-Day, each pilot's primary concern became avoiding air-to air collisions. From that point on, many troop carrier crews took their best guess, prayed, and sent their charges into the night.[43]

Sadly, NEPTUNE's airborne beginning bore little relation to the intensive preparations mounted by Allied planners and American units for the assault. Allied commanders incorporated the lessons of North Africa, Sicily, and Italy into pre-D-Day training and planning. They believed troop carrier's greatest weakness was a lack of training and, for the first time in Europe, devoted troop

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[41] Wolfe,116, disputes airborne troopers' claims about being far from their drop zones. The accuracy of airborne after-action reports collected one month after NEPTUNE must be weighed against a trooper's ability to remember his position after landing in strange country alone at night in combat. The next few days of confused stress in the close bocage country scrambled their whereabouts even more. As Wolfe writes "Only God and his recording angels know precisely where all the paratroops landed."

[42] Wolfe, 121, refers to Donald R.Burgett's Curahee! (Boston: Houghton Mifflin, 1967) and Richard Collier's The Freedom Road (New York: Atheneum, 1984)

[43] Wolfe, 122-123 and Warren Airborne Missions, 58.

carrier's time before a mission to preparing for the assault, rather than hauling personnel and cargo. The airborne assault force trained just as Training Circular No. 113 and after-action reports said they should. Despite the poor drops, the Army Air Forces considered NEPTUNE's planning and training to be the model for future operations and manuals.[44]

Despite the failures on D-Day, IX TCC's training provided a basis for its work during the rest of the war. Excluding IX TCC C-47's from the chores of cargo hauling and devoting them to mission preparation remedied many of the TCGs' deficiencies caused by deploying to England before completing their training in the United States. The entire command would never again experience such leisure to prepare for a particular operation. The intensive training also created a standard for Air Force leaders who would expect similar preparations for future missions.

After D-Day, IX TCC sat almost idle while the Allies stayed penned in the Normandy beachhead. Its customers, the 82nd and 101st Airborne Divisions remained engaged until mid-June. When relieved, the divisions needed many weeks to recoup their over 9,000 casualties and prepare for future operations. The stagnant front placed some demands on the cargo planes. Fighters filled the few beachhead airstrips, leaving little room for C-47's to land. BG Williams called for increased training, but IX TCC needed training in June 1944 less than

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[44] COL John A. Hilger, Asst. Chief Policies Division, AAF Board. Memorandum to President Army Air Forces Board, Orlando Florida, "Subject: Evaluation of Neptune-Bigot Report." 5 July 1944. AFHRA File #546.452.

[46] Breuer, 281.

at any time in the war. During this last quiet interval until the war's end, IX TCC aircraft in England averaged only one hour of flight per day per plane.[46]

Part of IX TCC helped mount Operation DRAGOON, the invasion of southern France. On 10 July 1944, BG Williams left England with 413 C-47's from the 50th and 53rd TCW's and the IX Pathfinder Unit bound for airfields near Rome. Once in Italy they joined the 51st TCW and formed the Provisional Troop Carrier Air Division (PTCAD) under Williams. Since the 51st TCW had not conducted airborne operations for many months, Williams immediately relieved it from cargo duties to train.[47] Excluding the 51st TCW, the troop carriers, for once, seemed like veterans when compared to DRAGOON's airborne component. "Rugby Force" consisted of an American parachute infantry regiment, two additional parachute infantry battalions, a British parachute brigade, and numerous other small units totaling 9,732 officers and men. Unlike the American and British airborne divisions utilized at Normandy, none had ever trained or fought together.[48]

The PTCAD and Rugby Force formed the First Airborne Task Force (FABTF) led by the flamboyant BG Robert Frederick, former First Special Service Force commander. Frederick learned of his assignment on 10 July, the same day Williams left England, leaving only 35 days to prepare for the planned 15 August assault near Marseilles. He quickly scrapped a plan prepared by a

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[46] Warren, Airborne Missions, 84 and Wolfe, 228-231.

[47] BG Paul L. Williams, "Report for Operation Dragoon, Headquarters Provisional Troop Carrier Air Division, U.S. Army Air Forces." 22 August 1944, AFHRA File #456.452.

[48] Breuer, 295.

ground-minded Seventh Army staff that would have left FABTF scattered all over southern France. The Seventh Army commander, LG Jacob Devers, granted the airborne and PTCAD staffs great autonomy and they coordinated the ad hoc operation brilliantly. The Seventh Army accepted Frederick's revised scheme for taking Le Muy, a crucial road junction north of DRAGOON's beaches.[49]

Operation DRAGOON's airborne operations passed smoothly with the most accurate airdrops in Europe thus far. Though met with only minimal resistance, the assault demonstrated troop carrier's ability to deploy long distances and mount an operation with little advance preparation. PTCAD planners had learned important lessons about weather contingencies during NEPTUNE and incorporated recall and delay options into their operations order. When PTCAD encountered poor visibility during its assault on 15 August, it shifted to an alternate plan and successfully completed the operation.[50]

While Williams led part of IX TCC in Italy, the Allies broke out of Normandy at the end of July 1944 and GEN Patton's Third Army began the armored race across France that changed troop carrier's role in Europe. Before OVERLORD, Allied logistics planners envisioned an orderly march toward the German border, granting them sufficient time to create an elaborate supply network behind the advancing armies. They counted on the early liberation of seaports and a rail network that engineers would keep within 50 miles of the

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[49] BG Paul L. Williams, "Report For Operation Dragoon, Headquarters Provisional Troop Carrier Air Division, U.S. Army Air Forces." 22 August 1944, AFHRA File #456.452 and Breuer, 294-299.

[50] Wolfe, 268-269.

front. After CARTWHEEL, the logisticians believed that, given optimal conditions, the Allies might be able to mount a four division push toward the Seine by 7 September.[51]

Patton ignored the logisticians' estimates. When Third Army pushed six divisions across the Seine on 16 August, it allowed LG Courtney Hodges' First Army and Montgomery's 12th Army Group to break out of the Normandy area. By 24 August, 16 American divisions, with six more closely following, had crossed the Seine, 250 miles from the nearest major port at Cherbourg. Unfortunately. Allied supply plans failed to account for a French rail and road system battered by their air attacks and German demolition. Each mile's advance increased the logisticians' problems by adding two round-trip truck miles to the supply lines. From 21 August on, Allied supply network failed to provide the huge quantities of gasoline and ammunition needed daily by First or Third Army. Patton's problem stemmed not from a shortage of men or tanks, but rather from the lack of five gallon jerry cans filled with gasoline. If the Germans could not stop the Allies, running out of fuel or ammunition might. [52]

As they searched for solutions to their logistics problems, Allied ground commanders hoped airlift might provide another way to supply the Allies' rapidly moving armies. Though aircraft could not carry the majority of the tonnage needed by the Allies, they could deliver much-needed items to critical locations. GEN Bradley stated that the need for and the effect of air supply "assume[d] an

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[51] Martin Van Creveld, Supplying War: Logistics from Wallenstein to Patton (Cambridge: Cambridge University Press, 1977) 209-217.

[52] Van Creveld, 214, and Craven and Cate, vol. 3, 275-276.

importance quite out of proportion to the actual lift." For units like the isolated 101st Airborne Division during the Battle of the Bulge or the VIII Corps near Burgreuland on 13 February 1945, airlift's little extra push made the difference between success and failure. [53]

Though IX TCC would most assist the ground forces, four other organizations existed on D-Day for aerial transport in the European Theater. Two of them, a small naval transport service and the European Division, Army Air Force Air Transport Command, served users far from the front lines. GEN Spaatz consolidated two air transport groups, the 31st, under IX Air Force Services Command, and the 27th, under the Air Service Command of United States Strategic Air Forces (USSTAF), into the 302nd Air Transport Wing on 1 September 1944. The 302nd and its predecessors numbered 184 planes, compared to IX TCC's 1,400, and served mainly Army Air Force supply needs by ferrying aircraft and moving personnel. Even though the 302nd evacuated nearly as many casualties as IX TCC, it hauled less than one-third the cargo IX TCC transported.[54]

The IX TCC made the most significant aerial contribution to the logistical crisis. On the days it was not held back for airborne operations, it provided up to 10 percent of the cargo received by front-line units. Beginning in August 1944,

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[53] GEN Omar N. Bradley, Military Advisor, United States Strategic Bombing Survey and Air Effects Committee, 12th Army Group, Effect of Air Power on Military Operations, Western Europe. 15 July 1945, AFHRA File #168.6005-127, 69.

[54] Carven and Cate, vol. 3, 557-562. 302nd Wing hauled 82,000 tons of cargo between June 1944 and May 1945, while IX TCC moved over 232,000 tons, not including its airborne operations.

IX TCC's cargo totals soared, then peaked during September's first two weeks when the command moved two and one half million gallons of gasoline, much to Third Army.[56] Unlike modern airlift aircraft that use collapsible fuel bladders loaded by forklift, troop carrier hauled almost all its gasoline in five gallon jerry cans, 120 per C-47, all loaded, secured, and unloaded by hand. Patton often rewarded the troop carrier crews by personally exchanging their precious cargo for precious, liberated spirits.[58]

The aerial resupply push during the Battle of the Bulge illustrates the difference airlift made between victory or defeat. From 22 December to 29 December 1944, IX TCC dispatched 2,137 C-47 and 61 glider sorties to resupply the 101st Airborne Division at Bastogne and moved the 17th Airborne Division from Great Britain to the continent as a strategic reserve. The command dropped over 1,000 tons of supplies, nearly 95 percent recovered by the 101st. The situation at Bastogne became so critical that paratroopers carried newly dropped shells to waiting artillery pieces to be fired immediately. Airdropped supplies kept the 101st alive when no one else could until Third Army relieved it on 27 December 1944. At the same time, troop carrier planes deployed 10,948 17th Airborne Division personnel and 1,621 tons of material from England to forward bases in France. [57]

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[56] CPT J.W. Weir, "Statistical Summary of the Activities of IX Troop Carrier Command (Period 4 June 1944 - 7 October 1944)." Headquarters IX TCC, Statistical Control Office, 26 October 1944. AFHRA File #546.308.

[58] Wolfe, 243.

[57] "Consolidated Summary, Operation REPULSE, 22nd to 29th December 1944." Headquarters IX Troop Carrier Command, Statistical Control Office. No date of completion. AFHRA File #546.308, MG Paul L. Williams, "Report on

GEN Bradley confirmed IX TCC's importance during 12th Army Groups' final offensive into Germany in April 1945. The lack of rail bridges across the Rhine forced supply trucks to make a 213 mile round-trip from the nearest railhead. The IX TCC, assisted by the RAF No. 38 and 46 Groups, delivered 22 percent of Third Army's gasoline and its critical maintenance parts, while evacuating nearly 20,000 casualties from 30 March to 9 May 1945. First Army depended on airlift for 10 percent of its supplies, the critical margin between success and failure in the supply situation.[58]

Four factors limited IX TCC role as the primary airlift organization for Allied ground forces. While weather affected every Allied aviation effort, a lack of airfields and poor coordination also hampered IX TCC's resupply capability. The greatest limit on IX TCC's supply effort came when airborne missions caused 1,400 planes to wait on airfields for operations that never happened or brought little tactical gain.

Weather shaped all aerial operations in Europe and kept IX TCC from moving cargo on many days when it was standing idle with no airborne responsibilities. While the C-47 possessed excellent instrument flying characteristics, rain, snow and ice closed the pastures and roads that often served as airstrips, even to the versatile "Gooney Bird." During August's supply

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Operation REPULSE" to Commanding General, Army Air Forces, 3 January 1945. AFHRA File #546.461C and Huston, 204.

[58] GEN Omar N. Bradley, Military Advisor, United States Strategic Bombing Survey and Air Effects Committee, 12th Army Group, Effect of Air Power on Military Operations, Western Europe, 15 July 1945, AFHRA File #168.6005-127, 73-74 and Craven and Cate, vol. 3, 562.

crisis, the Allies lost aerial supply for nine critical days due to weather, despite August's reputation for providing Europe's best flying conditions.[59]

A lack of suitable airfields prevented more cargo from being carried. Fighters occupied most tactical airstrips on the continent and few allowed troop carrier aircraft to land out of fears a crash or mishap might close the runway. Troop carrier planes often used airstrips far from the units they served. These diversions forced trucks to haul cargo that the transports might have delivered directly to the user. A 75 mile flight only took a C-47 an extra half an hour, but could take a day for already overtasked truck units. OVERLORD's planners had not planned on using airlift, but needed IX TCC's C-47's to meet their transportation shortfall. Without foresight, the Air Forces lacked the engineers and material to prepare airfields for airlift operations near the front. [60]

Effective airlift planning and control formed another obstacle that inhibited airlift from completely fulfilling its logistic potential. SHAEF created the Combined Air Transport Operations Room (CATOR) under AEAF in April 1944 to coordinate airlift by taking requests for routine and emergency aerial supply from Allied ground units and distributed them between the available airlift units. If CATOR received too many requests, it turned to SHAEF for its decision.[61]

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[59] Warren, Airborne Operations, 86 and Wolfe, 126-127 and 234-235. Wolfe recounts many anecdotes that show the C-47 deserves a reputation that rivals the Willys Jeep for ruggedness, dependability, and versatility. The C-47 often exceeded weight limitations and passed through devastating flak, yet seemed somehow to survive.

[60] Huston, 203.

[61] Huston, 201-202, and Robert Frank Futrell, Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force 1907-1960 (Maxwell AFB, AL: Air University Press, 1989) 179.

CATOR failed, at first, to coordinate airlift requests; it issued duplicate supply requisitions, allowed supply agencies to deliver supplies to the wrong airfields, or did not make adequate provisions to pick the supplies up, once delivered. CATOR had no organisation to control airlift movements in the field, either. When transports delivered their cargo to often remote airstrips, they had no mechanism to report their problems back to CATOR. CATOR did not control the supply agencies it coordinated and could not meet the transportation shortfall.[62]

In September 1944, when the supply crisis reached a peak, SHAEF attempted to bring all airlift administration under its logistical arm, GEN J.C.H. Lee's Communications Zone. LG Spaatz, USSTAF commander, resisted what he considered Lee's attempt to commandeer air transport, an Army Air Force function. Spaatz offered to take over all European airlift under USSTAF, but SHAEF failed to act. CATOR remained an ineffectual airlift manager until the following spring when its operational experience overcame its administrative handicaps.[63]

As the offensive rolled east, the Allies faced a dilemma. They could devote IX TCC's 1,400 C-47's to their growing supply crisis or they could devote the command to its primary mission, supporting airborne operations. Airborne's improved performance at Normandy convinced Army air and ground commanders of its strategic potential. In July 1944, Eisenhower established a new command, the First Allied Airborne Army, to employ airborne's potential,

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[62] Huston, 202.

[63] Craven and Cate, 561, and LG Carl A. Spaatz, Letter to Gen H.H. Arnold. 30 September 1944, AFHRA File #519.612.

creating the final barrier to IX TCC's alternate role in aerial supply: the responsibility of providing airborne airlift.

Chapter Three
Potential and Frustrations

Even after Eisenhower created a new airborne headquarters to facilitate larger airborne operations, no one seemed satisfied. Resistance to potential operations came from ground commanders like GEN Bradley who believed troop carrier airlift held the key to armored warfare success by supplying rapidly moving units and evacuating their casualties. As the Americans became more proficient in armored warfare, they depended more on airlift to supply their advancing tanks. The IX TCC never met the gro nd officers' expectations because "a large portion of the aircraft available was diverted during this period to airborne operations which were abortive."[1] The leaders of First Allied Airborne Army (FAAA), the organization created to conduct airborne operations, viewed IX TCC's mission differently. Led by Brereton, they felt that tactically-minded ground commanders limited airborne's strategic potential by demanding

[1] GEN Omar N. Bradley, Military Advisor, United States Strategic Bombing Survey and Air Effects Committee, 12th Army Group. Effect of Air Power on Military Operations, Western Europe . 15 July 1945. AFHRA File #168.6005-127, 71.

troop carrier airlift to solve their logistic shortfalls. FAAA's leaders needed well-trained troop carrier units to carry out decisive plans like Operation MARKET-GARDEN, the airborne invasion of Holland on 17 September 1944. Frustration mounted on both sides as they competed for a precious resource, troop carrier aviation.

The conflict over the proper role and position of airborne forces was not new. Just after the Army's first test parachute platoon formed in 1940, an argument erupted between Army and Army Air Corps leaders over who would control the new force, the Air Corps or the Army Ground Forces' infantry branch. Preferring to call the parachutists "air grenadiers," Air Corps chief MG Arnold saw them as another way to apply air power. Army ground officers, led by then BG Lesley J. McNair (later commander of Army Ground Forces), saw the new arm as little more than infantry carried to battle by aircraft and kept the new airborne units under the infantry branch.[2]

The AAF's vision of airborne assaults went beyond simply providing rapid transport for infantry units and fit into the AAF's autonomous future. After World War I, Air Corps leaders worked for independence from the Army, believing the air service had a separate strategic mission. Based on offensive principles advocated by Italian Giulio Douhet[3] and BG Billy Mitchell,[4] the Air Corps embraced long-range strategic bombing as the vehicle for its independence.

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[2] Breuer, 4-5.

[3] Guilio Douhet, Command of the Air, trans. Dino Ferrari (New York: Coward-McCann Inc., 1942).

[4] William Mitchell, The Winged Defense (New York: G.P. Putnam and Sons, 1925.)

During the 1930's, Air Corp's planners adapted the Army's coastal defense mission into an offensive role based on ideas formed at the Air Corps Tactical School at Maxwell Field, AL. They shaped Douhet's theories into a doctrine that entrusted high-altitude precision bombers to deliver decisive blows directly at the enemy's critical industries, crippling its will and ability to resist without the American army and navy having to engage enemy forces in costly battles.[5]

The Air Corps shared the Army's desire for a quick victory, but searched for a different way to achieve the same goal. Army leaders followed the lessons of the American Civil War's U.S. Grant and their own experiences in World War I in thinking that annihilating the enemy's armed forces in battle delivered the surest, quickest route to victory. Confronted with the possibility of fighting several powers simultaneously in 1939, the War Department developed RAINBOW 1 through 5, contingency plans that reflected its desire to end a future war quickly. After the German conquest of Europe, American planners focused on RAINBOW 5, a plan that dealt first with the more menacing Germans, then concentrated on the Japanese. The planners looked to a rapid build-up of forces in Great Britain and improved amphibious operations for a decisive cross-channel invasion into France and subsequently Germany. The AAF's doctrine also focused on immediate strikes against Germany, but differed from standard Army doctrine. Air leaders theorized that with control of the air, the AAF could destroy the enemy's industrial base and its will to wage war

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[5] Russell Weigley, The American Way of War: A History of United States Military Strategy and Policy (Bloomington: Indiana University Press, 1973) 223-241.

without invading the continent. Just before World War II, the AAF's Air War Plans Division completed a more specific document called AWPD-1 that provided detailed plans for first defeating the Luftwaffe and then attacking Germany's key industries like electric power, transportation, and petroleum.[6]

The AAF's approach to the European war reflected how its planners defined strategic operations differently from their Army counterparts. An Air Corps officer took the strategic offensive by attacking the enemy's vital centers, thereby eliminating its ability to wage war. The Air Corps approach demanded careful study of an opponent's economy to determine which vital centers to strike. An Army ground officer thought strategic operations brought units into contact with the enemy's armed forces. By eliminated the enemy's land forces, the Army ended the enemy's capacity to wage war. The difference between destroying the enemy's vital centers and its armed forces formed the basis of the Air Corps' search for ways to circumvent traditional land battles and defeat the enemy with airpower. AAF leaders cultivated an almost fanatical faith in their heavy bombers' ability to defeat Germany, if they were allowed to wage a "proper" air campaign. When Allied leaders ordered attacks against German submarine bases to aid beleagured merchant shipping convoys in 1942-43, AAF commanders opposed the diversion of their bombers away from targets defined in AWPD-1. By focusing the bombers efforts against AWPD-1's

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[6] DeWitt S. Copp, A Few Great Captains: The Men and Events that Shaped the Development of U.S. Air Power (Garden City: Doubleday & Company, Inc., 1980) 319.

selected targets, the AAF believed the bomber offensive held greater strategic potential than other "tactical" diversions.[7]

Unlike his European commanders who focused only on the strategic bombing campaign, Arnold allowed himself to look at other strategic uses of airpower. When Marshall called for a bolder air assault in NEPTUNE in February 1944, he had the support of Arnold and the Air Staff.[8] Eisenhower's letter to Marshall explained he rejected NEPTUNE's expanded airborne proposal due to the anticipated tactical difficulties of gaining a continental foothold and fears about the Allies' inability to relieve the airborne divisions at Évreux. Eisenhower told Marshall these factors compelled "the visualization of airborne operations as an immediate tactical, rather than a long-range strategic, adjunct of landing operations."[9] Eisenhower's reply left Marshall disappointed, but convinced that airborne operations held greater potential. Arnold and the Air Staff welcomed Marshall's plan as a way to utilize airborne forces for strategic purposes, even though the plan called for the use of 200 heavy bombers to airland[10] additional forces after troop carrier had dropped paratroops.[11]

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[7] DeWitt S. Copp, Forged in Fire: Strategy and Decisions in the Air war over Europe 1940-1945 (Garden City: Doubleday & Company, Inc. 1982). Copp's book chronicles the work of Arnold, Spaatz, and Eaker as they fought to establish, and then continue, the American daylight precision bombing campaign. Copp presents his narrative from an Air Force point of view.

[8] Arnold's planning staff at the Pentagon.

[9] Huston, 227.

[10] Airlanding troop meant flying them into an airfield for off-load, rather than airdropping them by parachute. Most aircraft can airland a larger load or more personnel than they can airdrop. The B-24 could airland 44 fully equipped soldiers, but could only airdrop 16 troopers.

[11] MG H.A. Craig, "Memorandum For the Chief of Air Staff, Subject: Full-Scale Airphibious Operations." 22 May 1944. AFHRA File #145.81-69A.

GEN Arnold continued to explore options that differed from standard AAF tenets when he commissioned several studies to investigate expanding airborne's potential. Tests conducted in December 1943 and February 1944 showed the AAF's B-17 and B-24 bombers had excellent cargo carrying capabilities, though they needed to use longer, stronger runways than those required by the C-47. After analyzing the results, Arnold ordered the Army Air Force Board in Orlando, Florida, to conduct a long-range study to further investigate airborne's operational possibilities.[12] In April 1944, the board reported that the army's airborne doctrine was inadequate to handle large operations, calling current operations large commando raids. The board recommended expanding the AAF's commitment to vertical envelopment operations beyond standard assaults that used troop carrier formations to deploy airborne units. To support larger "airphibious" assaults,[13] the board advised Arnold to enlarge the AAF's commitment to the operations beyond tactical air support by including heavy bombers that would carry additional ground units and supplies into an airhead.[14]

MG Howard A. Craig, Arnold's Assistant Chief of Air Staff for Operations, Commitments and Requirements, submitted a bolder statement for full-scale

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[12] MG H.A. Craig, Asst. Chief of Air Staff, Operations, Commitments and Requirements, Headquarters, Army Air Forces, Washington. *Letter* to Executive Director, Army Air Force Board. 22 February 1944, AFHRA File #145.81-69.

[13] The Air Staff adopted this term to parallel the Navy's amphibious operations signifying the movement of large bodies of troops by air. They also adopted the term airhead as an equivalent to beachhead.

[14] "Report of the Army Air Forces Board, Subject: Long Range Study of Airborne Operations." 29 April 1944. AFHRA File #145.81-69

airphibious operations in May 1944 to Arnold. Basing his conclusions on a staff study by COL S.F. Giffen, Craig redefined the airphibious operational concept that combined airborne operations with massive airlanded reinforcements. Craig called for the AAF to prepare to use all airpower assets, including heavy bombers, to assist ground forces more directly than with the current strategic bombing offensive. While he reaffirmed that specialized airborne units carried by troop carrier aviation would spearhead an assault, he anticipated the need to use an airphibious assault to break a battlefield stalemate.[15]

Arnold and his Assistant Chief of Air Staff, Plans, BG Lawrence Kuter, reviewed Craig and Giffen's plan a week later and placed it aside for future consideration. This came two days later when the Air Staff's Operational Plans Division requested that Kuter's European section plan an airphibious assault into southern France. The result proposed an initial assault of two airborne divisions to seize four airfields near Avigon, France. Five infantry divisions would reinforce the airborne divisions and move toward the French coast to establish a beachhead. The Air Staff needed 192 troop carrier C-47's and 1,008 Fifteenth Air Force B-17's and B-24's to supply the operation.[16] The Seventh Army rejected the plan and opted for a less risky combination of smaller airborne and amphibious assaults in Operation DRAGOON.[17]

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[15] MG H.A. Craig, "Memorandum For the Chief of Air Staff, Subject: Full-Scale Airphibious Operations." 22 May 1944, AFHRA File #145.81-69A.

[16] COL. P.E. Ruestow, Chief, Air Staff Logistics Planning Branch. Memorandum to Asst. Chief of Air Staff. "Subject: Airborne Operations against Southern Coast of France." 22 June 1944, AFHRA File #145.81-69.

[17] MG H.A. Craig, Memorandum to COL McKee "Subject: Airphibious Operations." 28 May 1945, COL S.F. Giffin, Memorandum to the Asst. Chief of

Not all the opposition to the airphibious operations in southern France came from Army ground officers; using the heavy bombers brought antagonism from the USSTAF staff as well. MG Fred L. Anderson, USSTAF's Deputy Commander, Operations, wrote to Kuter that USSTAF did not oppose airphibious operations as a concept. In fact, Anderson, his staff, USSTAF commander LG Spaatz, and Mediterranean Allied Air Force commander LG Ira Eaker applauded the concept's bold air approach to solving a tactical problem. The bomber leaders disliked committing 70 percent of the Fifteenth Air Force's heavy bombers for up to two months in support of an airphibious operation. They feared the operation might nullify the Combined Bomber Offensive's effect, allowing the Germans the respite they needed from bombing attacks to repair their reeling oil industry. Anderson supported creating a dedicated Air Army to mount airborne operations like those envisioned by the Air Staff, but not for DRAGOON. Anderson expressed his regrets to Kuter for turning down such a bold use of airpower in much the same way Eisenhower apologized to Marshall for adopting a conservative path for NEPTUNE.[18]

After OVERLORD, Eisenhower answered Marshall's desire for bolder airborne operations by forming a combined airborne headquarters. The SHAEF

Air Staff Plans. "Subject: Airphibious Operations." 29 May 1944, COL Joe L. Loutzenheiser, Chief, Operational Plans Division, Headquarters, Army Air Forces, Washington. Memorandum to the Chief, European Section. "Subject: Airphibious Operations." 30 May 1944. and COL William F. McKee, . Memorandum to General Giles. "Subject: Radio CM-IN-9167, 11 June 1944, from SHAEF." 12 June 1944, AFHRA File #145.81-69A

[18] MG F.L. Anderson, , Deputy Commander, USSTAF. Letter to MG L.S. Kuter, Headquarters, Army Air Forces. 24 July 1944, AFHRA File #145.81-69.

staff first imagined the new command would be co-equal with the AEAF and the army groups, placing airborne forces directly under Eisenhower. Its proposal encompassed only British and American airborne units, leaving IX TCC under AEAF. SHAEF's G-3, MG Harold R. Bull, submitted the plan to U.S. First Army, Twenty-first Army Group, and AEAF and received general approval for the plan. Bull's proposal placed independent American and British airborne corps under a coordinating headquarters that would pass command authority to local ground commanders during airborne operations. Though these would be planned by an autonomous headquarters, they would be conducted under the control of the local army group. Bull formally recommended creating the new headquarters on 17 June 1944.[19]

When Eisenhower expanded Bull's proposal by including IX TCC and British No. 38 Group under a command led by an American Army Air Corps general, he satisfied no one and angered many. Leigh-Mallory argued against removing the troop carrier units from under AEAF, citing the need to coordinate air operations under a single commander. The Chief of the Imperial General Staff, Sir Alan Brooke, believed the command should be given to a more experienced British officer, instead of to an American. Brooke's choice, LG Frederick Browning, the senior Allied airborne officer, resented Eisenhower's plan to put an air officer in a post that rightly belonged to him. American airborne officers thought MG Matthew Ridgway, senior general of the largest Allied airborne contingent, deserved the position.[20]

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[19] Huston, 76-77.

Marshall granted his approval for the plan only after requesting clarification from Eisenhower about whether the Air Corps general would command engaged ground troops after they landed. Eisenhower replied that while the air officer would retain overall authority over training, planning, logistical support, and the initial assault, an airborne corps commander would be appointed to lead the airborne units until they could link up with other ground units. Despite the protests, Eisenhower remained committed to his plan and with Marshall's and Arnold's support, searched for a suitable AAF general, something in short supply. Eisenhower's first choice, 34-year old LG Hoyt Vandenberg, Leigh-Mallory's deputy at AEAF, proved too young for the 64-year old Marshall to accept. After much trans-Atlantic discussion, Eisenhower picked the Ninth Air Force commander, LG Lewis Brereton, to command the new Combined Airborne Headquarters. [21]

Eisenhower's choice again incensed many, not the least of which was Brereton himself. The ornery 55 year-old general already had made an enemy of Bradley, who complained about the lack of support from Ninth Air Force. Browning, appointed Brereton's deputy commander, resented serving under an officer four months his junior in grade. Brereton disliked leaving the prominent Ninth Air Force for a new post over slow transport planes and rarely used paratroopers; he also doubted the requirement for a separate airborne headquarters and favored placing all troop carrier and airborne units under

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[20] Breuer, 325-326.
[21] Huston, 77-70, and Breuer, 325-326.

AEAF's existing headquarters to provide unity of command over all air operations. Eisenhower turned down the proposal. When they met on 17 July 1944 to discuss the new command, Brereton promised to give Eisenhower the bold plans he sought, but felt neither the SHAEF staff nor Eisenhower's ground commanders would like them. After officially accepting command on 2 August 1944, Brereton also asked that the Combined Airborne Headquarters be redesignated First Allied Airborne Army. Eisenhower approved and changed the name on 17 August 1944.[22] (See Figure 1 for FAAA's organizational diagram)

Brereton gathered a staff of diverse officers to shape his bold plans. In addition to LG Browning, Brereton gained a chief of staff, tank expert BG Floyd L. Parks, who had just left an assignment as GEN McNair's G-3 at Army Ground Forces. Parks' G-3, BG Ralph F. Stearley, taught tactical air support at the Air Corps Tactical School for four years and served under Brereton at Ninth Air Force. An airborne officer, BG Stuart Cutler, filled out the staff as Deputy Chief of Staff, Plans. Brereton's original headquarters table of organization granted him 35 officers to plan FAAA's operations, too few to organize the missions planned over the next few hectic months. The FAAA commander borrowed officers from Ninth Air Force, Eighth Air Force, USSTAF, AEAF, Headquarters British Airborne Corps, and each airborne division to fill his needs.[23] Having served under Mitchell in World War I, the former Ninth Air Force commander believed in air power's ability to be decisive on the battlefield. A new regulation,

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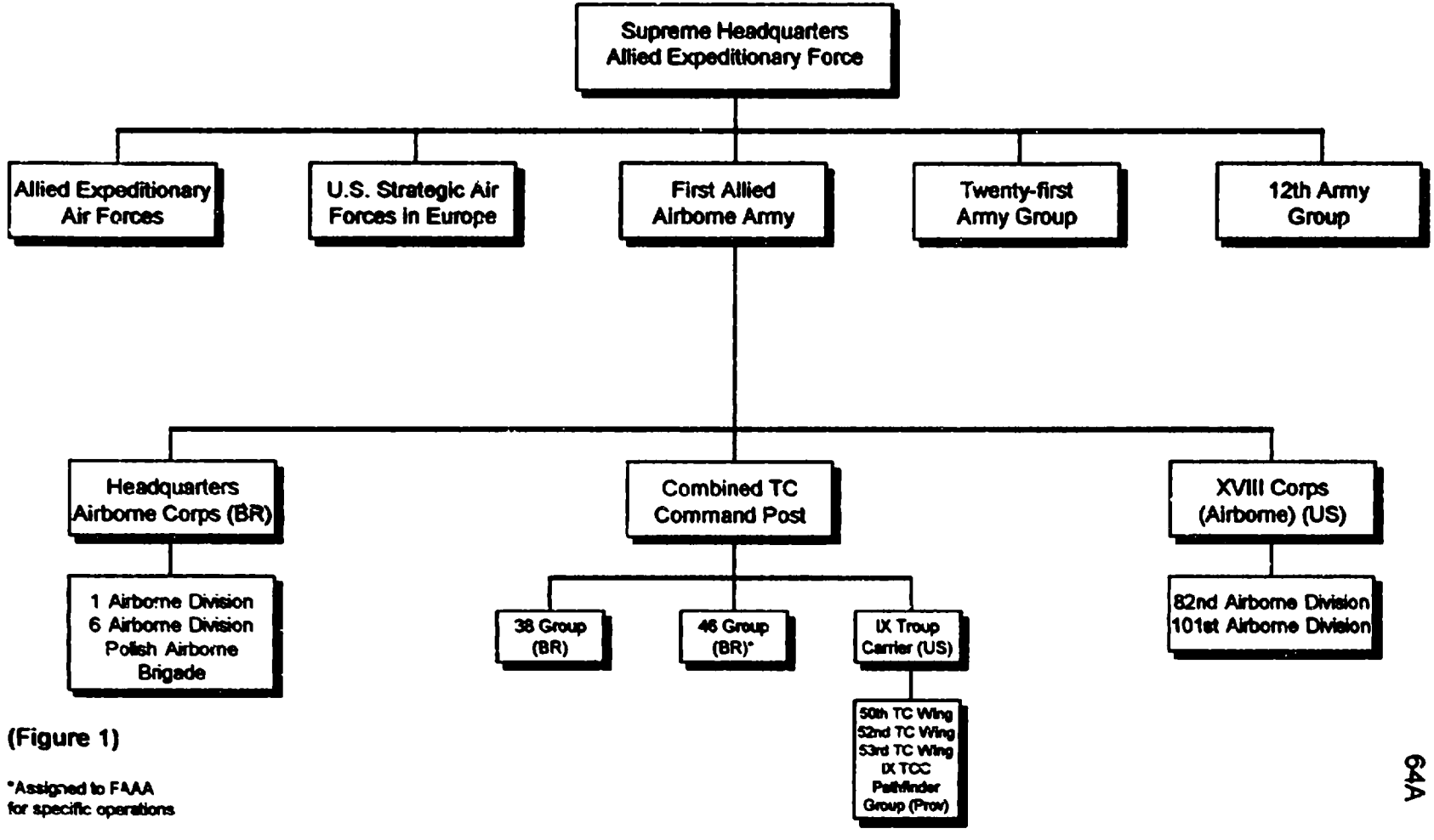
[22] Huston, 78.

[23] LG Lewis H. Brereton, Letter to General Henry Arnold. 24 October 1944, AFHRA File #168-7045-49.

Allied Air and Ground Forces
August 1944



(Figure 1)

*Assigned to FAAA for specific operations

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AAF Regulation No. 20-44, "Organization, Responsibilities for Air Transportation," bolstered Brereton by stating that troop carrier's primary mission was supporting airborne operations.[24] He meant to free the airborne forces from the limited, tactical plans and logistic demands of ground commanders, allowing them to fulfill the potential seen by Arnold and Marshall. The staff's desires reflected Brereton's.[25]

For its first six weeks, the staff mostly planned airborne operations. Though FAAA's responsibilities included supervising training, arranging supplies, insuring coordination with naval and air commands, and reconstituting airborne forces after battle,[26] it concentrated on preparing plans to assist the rapid Allied advance across France. The belated relief of the U.S. 82nd, 101st, and the British 6th Airborne Divisions from the Normandy beachheads prohibited extensive airborne plans during July 1944. After the Allies' breakout from Normandy, FAAA quickly planned an assault, called TRANSFIGURE, using airborne troops to trap the Seventh German Army near Paris. Though FAAA and SHAEF formulated TRANSFIGURE on 8 August and had marshaled the forces to implement it on 17 August, Patton's tanks moved quicker and captured FAAA's target area on 16 August. SHAEF canceled TRANSFIGURE.[27]

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[24] "AAF Regulation No. 20-44. Organization, Responsibilities for Air Transportation." War Department. Headquarters, Army Air Forces, Washington," 17 August 1944. Air Mobility Command Archives, Scott Air Force Base, ILL.

[25] "First Allied Airborne Army." Headquarters First Allied Airborne Army. December 1944, AFHRA File #168.7045-45 and Huston, 80.

[26] GEN Dwight D. Eisenhower, Supreme Commander, Allied Expeditionary Forces, by COL E.C. Boehnke, Adjutant General. Memorandum. "Subject: Reorganization of Airborne Forces." 8 August 1944, AFHRA File #546.201.

Brereton's staff continued to lay out new operations, but the increasing supply demands on his troop carrier units raised doubts about their availability for airborne assaults. Just before canceling TRANSFIGURE, Bull notified Brereton that SHAEF would task IX TCC to haul 2,000 tons of supplies per day until 25 August 1944. Bull assured Brereton that IX TCC's assignment was temporary, but Brereton doubted the supply crisis would end soon. With part of IX TCC still in Italy, meeting SHAEF's demand would require having daily flights by all of IX TCC's planes in England, thus prohibiting any airborne training. The FAAA commander ordered his staff to find another way to accomplish the supply mission, including the use of heavy bombers to fill the gap, so his troop carriers could continue to train. Brereton believed joint training was essential to successful airborne missions and continued to fight to have his troop carrier units freed from supply duties.[28] He feared his troop carrier forces would become integrated into the army's logistic system, instead of carrying his airborne troops.[29]

FAAA's staff fought the SHAEF staff's logistics requirement to create audacious airborne plans. Eisenhower's headquarters faced a daily supply crisis and sought any means necessary to satisfy the Allied force's voracious appetite for gasoline, ammunitions, and food. Through CATOR, now under FAAA, SHAEF did not end IX TCC's airlift duties on 25 August as MG Bull

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[27] Warren, Airborne Operations, 85.

[28] "Notes, Staff Meeting, Headquarters, First Allied Airborne Army." 15 August 1944, AFHRA File #168-7045-49.

[29] GEN Lewis H. Brereton, "Airborne Operations, World War II." Lecture to Air War College. 10 October 1951, AFHRA File #K239.716251-23.

promised. They saw FAAA's idle troop carrier aircraft as an excellent medium to patch up their faulty system. Allied truck battalions only carried a maximum of 11,000 tons of supplies per day, so IX TCC's additional 2,000 ton requirement would be a significant boost for Allied armies. The IX TCC's and No. 38 Group's C-47's managed to move an average of 600 tons per day during September on the days they were not held back for airborne operations or grounded by bad weather, but never met SHAEF's goal.[30] As mentioned above, poor airlift coordination, a lack of airfields, and the departure of 413 C-47's for DRAGOON constrained the airlift effort.[31] SHAEF's decisions to use airborne forces in the static situations before OVERLORD and DRAGOON when they did not depend on airlift to meet daily logistic needs proved much easier than during fluid operations in the late summer of 1944. Whenever SHAEF approved an airborne plan in August 1944, IX TCC's C-47's dropped out of the logistics equation while they prepared to launch an assault. During this period, SHAEF never devoted troop carrier forces solely to airborne operations or logistic requirements for

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[30] GEN Omar N. Bradley, Military Advisor, United States Strategic Bombing Survey and Air Effects Committee, 12th Army Group. Effect of Air Power on Military Operations, Western Europe . 15 July 1945. AFHRA File #168.6005-127, 72.

[31] To put SHAEF's requirements in perspective, before Williams returned from Italy, IX TCC and No. 38 Group had approximately 800 operational C-47's. If every available aircraft flew one mission to the continent and hauled three tons, the C-47's maximum recommended payload, the airlift would have reached 2,400 tons per day. The IX TCC and No. 38 Group normally flew no more than 75 percent of their aircraft on a daily basis, including airlift, joint training, and administrative missions. Even after IX TCC regained full strength on 25 August, satisfying CATOR's demands remained difficult. CPT J.W. Weir, "Statistical Summary of the Activities of IX Troop Carrier Command (Period 4 June 1944 - 7 October 1944)." Headquarters IX TCC, Statistical Control Office. 26 October 1944, AFHRA File #546.308.

extended periods. The resulting taffy pull frustrated ground commanders desperate for supplies and FAAA planners who believed in their force's strategic potential.[32]

Allied strategy shaped new plans created by FAAA. After shattering the German armies in France, two paths lay open to Eisenhower. He could strike east toward the Siegfried Line near Metz with Bradley's Twelfth Army Group or north toward Belgium, Holland, and Germany's northern plain with Montgomery's Twenty-first Army Group, but his supply crisis meant he could not support both. Eisenhower based his decision to strike north on the route's direct path to the Ruhr valley, Germany's industrial heart, its proximity to tactical air support in England, and the need to reduce V-1 launching sites near the Pas-de-Calais. His controversial choice to support Montgomery with the majority of Allied supplies on 23 August committed FAAA's plans and planes to the northern drive. [33]

Pressure from GEN Arnold and the Air Staff also shaped Brereton's plans. Arnold wrote Brereton on 17 August 1944 that every effort must be taken "to effect a bold and aggressive employment of your forces."[34] Arnold attached an Air Staff memorandum outlining several prospective airborne operations FAAA might undertake to destroy German armies without becoming mired in the

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[32] GEN Lewis H. Brereton, "Airborne Operations, World War II." Lecture to Air War College. 10 October 1951, AFHRA File #K239.716251-23.

[33] Warren, Airborne Operations, 86-87, Craven and Cate, vol. 3, 598-599, and Wolfe, 238.

[34] GEN Henry H. Arnold, Letter to LG Brereton. 16 August 1944, AFHRA File #145.81-69.

trench battles of World War I. The Air Staff believed the Allies main advance would be through Belgium toward Aachen and the Ruhr and produced five plans for Brereton. Three attempted to block the retreating German Seventh Army with operations north of the Seine river near Rouen, south of the Somme river near Amiens, or near Reims on the Marne river. Another plan proposed that FAAA seize an airhead in the Pas de Calais near Dunkirk that, in conjunction with a small amphibious landing, would open a supply line from England and capture the German rocket launching sites. The boldest plan used FAAA to seize an area northwest of Cologne to threaten the German rear and the Ruhr Valley. The Air Staff realized the time and manpower required to prepare for these operations limited Brereton's options more than any other factors. The strikes required Eisenhower to hold large reserves off the frontlines for airland operations supporting airborne attacks that might never occur. Arnold appealed to Brereton to create bold plans and take any opportunity to use FAAA for decisive strategic gains. Arnold feared that failure to implement decisive operations would lessen the Allies' initiative and create a stalemate in Europe.[35]

FAAA planned four operations to support Montgomery's drive before mounting Operation MARKET-GARDEN (an airborne seizure of Dutch bridges, dubbed MARKET, supported by an armored operation drive across the Lower Rhine called GARDEN) on 17 September. It first conceived BOXER, an airdrop near Boulogne to grab its port and harass the retreating Germans. After

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[35] GEN Henry H. Arnold, Memorandum to LG Brereton. "Subject: Strategic Employment of Large Airborne Forces on the Continent." 16 August 1944, AFHRA File #145.81-69.

Montgomery turned BOXER down, his chief of staff, GEN Francis de Guingand, and Brereton formulated LINNET, a drop near Tournai designed once again to cut off the enemy's withdrawal. SHAEF approved LINNET's 3 September target date. After FAAA began marshaling its forces in England on 31 August, SHAEF canceled the mission on 2 September due to poor weather and the Twenty-first Army Group's quick advance. When SHAEF called off LINNET, Brereton attempted to shift the Allies strategic direction toward the American Twelfth Army Group. He tried to mount LINNET II, an assault north of Liege to secure Meuse River crossings for LG Courtney Hodges U.S. First Army[36] on 4 September. LINNET II collapsed when Bradley would not support the operation because it robbed Patton's Third Army of its remaining troop carrier airlift. The British, especially LG Browning, opposed the operation's short notice and its move to the east away from Montgomery's main push across the Lower Rhine. Montgomery also feared Eisenhower might renege on his agreement to give the Twenty-first Army Group priority in its drive north and demanded Eisenhower's assurance to the contrary. The SHAEF commander placated Montgomery and informed Brereton his command would be devoted to the northern drive until the Rhine could be crossed.[37]

FAAA's last plan before MARKET-GARDEN, called COMET, can be called MARKET-GARDEN's parent. Planning began on 4 September for an operation that asked the British 1st Airborne Division and the Polish Parachute

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[36] First and Third Army formed Bradley's Twelfth Army Group.
[37] Warren, Airborne Operations, 87, and Wolfe, 274-275.

Brigade to seize bridges at Arnhem, Nijmegen, and Eindhoven on 8 September and hold them for armored relief. Bad weather, stiff German resistance, and slow British advances caused Montgomery to postpone COMET twice, before finally canceling it on 9 September.[38]

August and September's frantic pace taxed IX TCC. While plans came and went, the demand for airlift grew. The IX TCC resumed training during the first two weeks of August, but supply requirements rapidly cut off the training. Less than one crew in three flew a paratroop training sortie in the month before MARKET; night flying decreased to just under one hour per week per pilot. Brereton's worries grew about the lack of troop carrier training during the resupply push, and he relayed his concern directly to Eisenhower, pleading with the SHAEF commander to relieve his troop carrier units of their resupply mission and let them resume training.[39] FAAA leaders worried the heavy supply tasking would prevent training the newly arrived 17th Airborne and recently reconstituted British 6th Airborne Divisions and tried to pack as many training flights as possible into the lulls with little success.[40] Each time Brereton's staff received approval to mount an operation, IX TCC shifted gears to marshal and load planes and gliders, and prepare intelligence and route plans. Airborne units moved to airfields, supply flights slowed to a trickle, and training ceased. When

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[38] Warren, 88.

[39] LG Lewis H. Brereton, Letter to GEN Eisenhower. 20 August 1944, AFHRA File #168-7045-49.

[40] BG R.F. Stearley, "Memorandum to BG Parks. "Subject: Training of U.S. 17th Airborne and British 6 Airborne Divisions." 12 September 1944, AFHRA File #168-7045-49.

an operation was canceled, IX TCC returned to supply duties until the next alert came and the cycle began again. In all, during the month before MARKET, IX TCC only had five days when an airborne operation was not considered imminent. Maintaining a ready status also prevented FAAA from using an exercise as a dress rehearsal for MARKET. [41]

To American ground commanders short of gasoline and ammunition, FAAA's plans seemed more futile than bold. Bradley estimated that from 15 August until 17 September, holding troop carrier C-47's back for airborne operations cost his armies 15 days of airlift. Even with these diversions, IX TCC's efforts were considerable. Analysis of IX TCC records reveals that the command carried 20,034 tons of cargo to the Allied armies from 23 July to 16 September 1944, more than half delivered after 1 September. During September's first 16 days, IX TCC carried 7,926 tons of gasoline or 2,477,074 gallons hand-carried in five gallon jerry cans.[42] On 17 September, these missions ceased and Bradley's criticisms grew when MARKET-GARDEN became a reality.

On 10 September, LG Browning informed the FAAA staff that Eisenhower and Montgomery had requested an operation similar to COMET, called MARKET-GARDEN, to seize bridges at Eindhoven, Nijmegen, and Arnhem but enlarged to three or four divisions, instead of COMET's one and a half. During

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[41] Wolfe, 239.

[42] CPT J.W. Weir, "Statistical Summary of the Activities of IX Troop Carrier Command (Period 4 June 1944 - 7 October 1944)." Headquarters IX TCC, Statistical Control Office. 26 October 1944, AFHRA File #546.308.

the preliminary phase, named MARKET, the airborne divisions would seize and hold bridges for British XXX Corps' drive north, named GARDEN, cutting off German forces in western Holland and outflanking Germany's Seigfried defensive line to the east. If successful, the operation promised quick access to the Ruhr Valley and Germany's northern plain.[43]

Several decisions shaped MARKET's troop carrier employment. Brereton opted for a daylight assault for the first time in Europe, despite greater risks to the C-47's from flak and fighters. The FAAA commander trusted the tactical air forces to clear a daylight path for his C-47's, fearing the troop carriers lack of recent training would result in scattered night drops as at Normandy. [44] Brereton and 101st Airborne Division commander MG Maxwell Taylor eased the troop carrier's task by revising LG Browning's original drop zone selection to consolidate the 101st's DZ's near Eindhoven. While Browning's plan scattered pockets of troopers all along the single highway XXX Corps would advance up, the Americans wanted more centralized DZ's to concentrate their forces.

MARKET's size created the most crucial problem that challenged FAAA planners. FAAA could not deliver the British 1st Airborne Division, the Polish Parachute Brigade, and the 82nd and 101st Airborne Divisions on one day, even when IX TCC and No. 38 Group were augmented with more transports from No.

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[43] LG Lewis H. Brereton, Letter to Supreme Commander, Allied Expeditionary Force. "Subject: Airborne Operations in Holland, September -November, 1944 (MARKET)." 22 December 1944, AFHRA File #168.7045-46.

[44] LG Lewis H. Brereton, Letter to Supreme Commander, Allied Expeditionary Force. "Subject: Airborne Operations in Holland, September -November, 1944 (MARKET)." 22 December 1944, AFHRA File #168.7045-46.

46 Group, normally reserved for clandestine operations. Short September days and long routes from English airfields prevented the troop carrier aircraft from delivering more than one lift per day and the TCG's lack of training in the previous months prohibited glider double tows.[45] The combination forced the planners to spread the assault over three days. Eighth Air Force agreed to provide 252 B-24's for resupply missions on the assault's second day.[46]

Almost continuous preparations for canceled operations over the previous month allowed the FAAA staff to quickly dispose of the problems that had crippled previous assaults. The IX TCC's hectic schedule prior to MARKET prevented a dress rehearsal for the operation, but excellent planning helped overcome that shortfall. The airborne units were already housed near their assigned departure fields, making coordination between the TCW's and divisions easier. Elaborate navigation aids marked two routes with lights, smoke, colored panels, and radar and compass beacons ensuring the serials would not get lost. Planners selected route altitudes to avoid flak and speeds to prevent congestion over the DZ's. Allied commanders forbade anti-aircraft fire on any aircraft along the designated routes. Weather forecasters predicted generally good weather over Holland for the 17th to 19th of September, allowing the needed three days to move the assault force.[47]

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[45] A glider double tow allowed a single C-47 to pull two gliders using two separate tow ropes. Most TCG's had practiced the procedure in the United States, but had concentrated on single tow while in Europe.

[46] Huston, 14-15 and Wolfe, 276.

[47] CPT Harry F. Nash, Acting Asst. Adjutant General for MG Williams. "Preliminary Report on Operation "MARKET." To Commanding General, Army Air Forces. Headquarters IX Troop Carrier Command. 3 October 1944. AFHRA

Faulty intelligence, unexpected German resistance, and poor weather doomed MARKET-GARDEN. The British drop six miles from the Arnhem bridge encountered two unknown German tank divisions, preventing 1st Airborne from securing its assigned bridge. Poor weather ruled out planned troop reinforcement drops on 19 September for up to four days and postponed resupply drops even more. The poor weather not only delayed reinforcement drops, but forced units to commit troops to hold and secure the DZ's, draining resources from critical bridge attacks. The airborne forces might have held for the three days originally allotted for GARDEN to reach Arnhem, but a hesitant XXX Corps faced stiff resistance in its drive north and failed to reach 1st Airborne Division before it collapsed on 24 September.[48]

MARKET-GARDEN's failure to secure the bridge at Arnhem and open a path into Germany overshadowed the excellent performance of troop carrier units. The troop carrier forces performed well and received universal praise for their accuracy and courage during the airdrops.[49] After NEPTUNE and DRAGOON, the now experienced troop carrier crews disproved fears about their lack of training before MARKET. Though the crews proved competent enough for the assault, their focus on supplying the Allied armies during the summer had shaped the way FAAA employed airborne forces. SHAEF's decision to use troop

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File #546.327.

[48] Wolfe, 274-513, and Warren, Airborne Operations, 149-150. Wolfe and Warren criticize XXX Corps' leaders for a slow advance toward Arnhem that seemed more concerned with minimizing their own casualties than relieving 1st Airborne.

[49] BG James M. Gavin, Letter to MG P.L. Williams. 25 September 1944, AFHRA File #546.452K-1.

carrier planes in supply missions in August and September prevented the type of training Brereton expected and convinced him to shift to a daylight assault and reject suggestions for double towed gliders. The C-47's increased fuel consumption while towing two gliders reinforced his decision by prohibiting double tow missions from English airfields.[50] The long missions also prevented FAAA from flying more than one lift per day, forcing planners to spread the assault over three days, which was one day more good weather than the Allies received.[51]

Moving FAAA to the continent could have solved the problem of MARKET's long routes. BG Stearley's G-3 section had begun plans to move FAAA to airfields and bivouacs near Paris on Brereton's order on 18 August. They requested 23 airfields to house IX TCC and No. 38 and No. 46 Groups and believed the entire command, including the airborne divisions could be moved in nine days. On 21 August, SHAEF postponed the moves indefinitely due to a shortage of prepared airfields. The same shortage of engineers and supplies that undermined efforts to build airfields for supply flights prevented FAAA from moving to the continent before MARKET.[52] The IX TCC finally moved to bases

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[50] LTC Thomas M. Bartley, Jr., G-3 Section, FAAA. Memorandum. Headquarters, FAAA. "Subject: C-47 Radius of Action." 9 September 1944, AFHRA File #168-7045-49.

[51] Warren, Airborne Operations, 149-150.

[52] Stearley, BG R.F. Memorandum to COL R.P. Swofford, Jr., Asst. G-3, FAAA. "Subject: Move to Paris Airfields." 18 August 1944, Memorandum to BG Floyd L. Parks. "Subject: First Allied Airborne Army Move to the Continent." 20 August 1944 and COL Harold H. Cartwright, Memorandum to BG Stearley. "Subject: Visit with General Eisenhower." 21 August 1944. AFHRA File #168-7045-49.

in France in three stages beginning in September 1944 and ending with the transfer of the 52nd TCW and the FAAA headquarters in February 1945, just before Operation VARSITY, an attack to support the British Second Army Rhine crossing.[53]

While Brereton and all the Allied commanders in Europe considered MARKET a success from an airborne point of view, the FAAA commander remained frustrated about how ground commanders utilized his force. Brereton believed ground officers only understood plans that applied airborne forces for local or tactical objectives. He thought only Eisenhower and his chief of staff, LG Bedell Smith, understood how to utilize his force for strategic operations. In addition, the Twenty-first Army Group continued to hold airborne units at the front long after MARKET was finished, limiting Brereton's ability to mount further operations. If ground commands released his airborne divisions, he feared poor logistic planning by the ground commanders would result in their continued reliance on airlift to meet logistic needs, forcing SHAEF to be reluctant to use FAAA again. Brereton also doubted future operations could run as smoothly as MARKET had without renewed training for his troop carrier forces.[54]

Arnold shared Brereton's frustrations about the improper use of FAAA. The AAF chief criticized MARKET, believing the operation failed to concentrate the airborne units. Arnold thought MARKET would have been much more decisive if it had been launched toward Cologne, as his letter in August had

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[53] Warren, Airborne Operations, 158-159 and Wolfe, 359-375.

[54] LG Lewis H. Brereton, Letter to General Henry Arnold. 24 October 1944, AFHRA File #168-7045-49.

recommended. He implored Brereton to strive for more autonomy from ground control, possibly even placing FAAA under Ninth Air Force. Like Brereton, Arnold doubted ground commanders could see strategic operations as Air Corps officers did.[65]

MARKET-GARDEN resolved nothing about the use of troop carrier aviation. As fall changed to winter, the Allied offensive toward Germany slowed, and FAAA mounted no airborne operations until March 1945. The decisive assaults sought by Marshal, Arnold, and Brereton would never occur.

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[65] GEN Henry Arnold, Letter to LG Brereton, 19 October 1944, AFHRA File #168-7045-49.

Conclusion

The conflict over the use of troop carrier aviation in Europe persisted until the war's end as it continued to both resupply ground units and prepare for airborne operations. Though VARSITY proved to be the most successful Allied airborne operation, Brereton and his staff remained dissatisfied with the operation's scope. Though they created many plans for the strategic use of FAAA, SHAEF did not implement the operations, choosing instead to use airborne forces for tactical problems.

During the winter of 1944-45, the FAAA mounted no major airborne operations, but its units gave yeoman's service during the Battle of the Bulge. After the 82nd and 101st Airborne Divisions were finally relieved from Holland in November and December 1944, they refitted in eastern France as a strategic reserve. The German offensive through the Ardennes on 16 December caught the Allies off guard and SHAEF rushed the 82nd and 101st by truck to fill holes in the American lines. The Germans surrounded the 101st at Bastogne, but the garrison held until reinforced by Third Army. As discussed above, IX TCC

provided crucial aerial resupply, dropping over 1,000 tons of supplies to the besieged division.[1]

After MARKET, the FAAA staff continued to design airborne operations, but SHAEF discarded six FAAA plans to cross the Rhine River or breach the Seigfried Line before committing to VARSITY. The first outlines for Operation VARSITY began in October 1944 and utilized the British 6th Airborne and the 17th U.S. Airborne Divisions while the rest of XVIII Airborne Corps fought in Holland. After recovering from the Battle of the Bulge, the Allies returned to the offensive and planned to cross the Rhine in March 1945. VARSITY would support British GEN Miles C. Dempsey's Second Army by dropping assault forces to secure the high ground that dominated its crossing area near Wesel.[2]

VARSITY was the best executed Allied airborne operation during the war, demonstrating that FAAA had solved many of MARKET's problems. The IX TCC completed two dress rehearsals in the weeks prior to VARSITY and their preparations showed. Brereton opted for another daylight operation on 24 March 1945 and under clear skies, the recently relocated IX TCC carried its troops from French airfields. By using double towed gliders, the troop carriers transported the entire assault force in one lift. With the addition of No. 38 and No. 46 Groups flying from bases in East Anglia, VARSITY's combined aerial stream extended 200 miles and took two and a half hours to pass over the drop

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[1] "Consolidated Summary, Operation REPULSE, 22nd to 29th December 1944." Headquarters IX Troop Carrier Command, Statistical Control Office. No date of completion, AFHRA File #546.308.

[2] "Narrative of OPERATION VARSITY 20 March 1945." Headquarters, FAAA. 31 March 1945, AFHRA File #168.7045.

zones. The troop carriers made accurate airdrops and glider landings and the airborne forces quickly linked up with each other and Second Army as it crossed the Rhine. Although Allied air support protected troop carrier from air attack, the troop carrier forces lost 71 of 1,835 transports by enemy anti-aircraft fire. [3]

The plan to cross the Rhine reflected Montgomery's limited conception of airborne operations. Like McNair, who saw airborne troops as infantry moved to battle in aircraft, Montgomery and his staff used FAAA like a pole vaulter across the Rhine. Instead of a strategic operation, VARSITY attained local, tactical gains that might have been taken as quickly without the considerable effort involved in planning and mounting airborne operations. The British river crossing had already gained a beachhead equivalent in size to the VARSITY drops before VARSITY occurred. VARSITY overwhelmed the German defenders in its immediate area, but did not attack the Germans at one of their vital strategic centers.[4] Planned from a static situation, VARSITY looked more like the airdrops to secure NEPTUNE's beachhead than the decisive assaults Arnold, Marshall, and Brereton believed possible.

There had been no shortage of bold plans from Brereton's headquarters in the spring of 1945. While planning for VARSITY, FAAA proposed Operation ECLIPSE, an assault by the 82nd and 101st Airborne Divisions, a British parachute brigade, and a Polish parachute regiment to strike 300 miles behind German lines and secure Berlin's airfields. Eisenhower's doubts about Berlin's

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[3] "Narrative of OPERATION VARSITY 20 March 1945." Headquarters, FAAA. 31 March 1945, AFHRA File #168.7045 and Wolfe, 376-403.

[4] Wolfe, 404.

value as a military target led him to cancel ECLIPSE in late March 1945. An even grander plan, ARENA, called for FAAA to attack an area between Kassel and Paderhorn, 100 miles east of the Rhine, on May 1 using the U.S. 13th, 17th, 82nd, and 101st Airborne Divisions and Britain's 1st and 6th Airborne Divisions. The initial assault force would seize German airfields to allow troop carrier aircraft augmented by USSTAF heavy bombers to ferry four or five infantry divisions into the airhead. When Brereton outlined ARENA to Eisenhower just after the Ninth Army's Rhine crossing at Remagen on 9 March, Bradley counseled against the operation. He argued that Allied armies would reach the planned assault area before FAAA could be ready to mount ARENA. Eisenhower agreed and canceled ARENA. Two weeks later, VARSITY was the final airborne operation in Europe.[5]

After VARSITY, SHAEF fully committed IX TCC to aerial supply missions. As Allied forces entered Germany, only troop carrier airlift could keep up with the vanguard of the rapidly advancing armies. During April, IX TCC delivered 10,?55,509 gallons of gasoline and 26,000 tons of other cargo to ground forces, three times the cargo IX TCC delivered from 1 January to 31 March. On 4 April, IX TCC airlanded 732,000 gallons, as much gasoline as it hauled during 1945's first three months. During these operations, IX TCC also helped evacuate Allied casualties and liberated POW's. CATOR had fixed many of its administrative problems during the winter, but much of the credit for IX TCC's improved

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[5] Breuer, 538-540.

performance went to 11-man Airfield Control Teams that deployed by glider to outlying fields to coordinate and control airlift operations.[6]

Even though IX TCC had enhanced the Army's logistic system, Brereton believed his force's potential had been wasted. In a postwar lecture at the Air Force's Air War College, Brereton blamed the lack of strategic airborne planning by ground commanders on their lack of indoctrination about airborne's potential. As stunning as the Allied pursuits across France and Germany had been, the FAAA commander believed they might have been quicker had FAAA been used to its full potential, as in plans like ARENA or ECLIPSE. Brereton conceded that his troop carrier force had justified their existence based on their logistic performance alone, but reminded his audience that the troop carriers' primary mission was supporting airborne troops and their operations. When the daily airlift demands of ground commanders exceeded the capability of every TCG in Europe in August 1944, Brereton's newly-created FAAA lacked the stature to demand a reduction in airlift tasking to satisfy its needs for airborne training. Once committed to the logistic mission, freeing troop carriers for airborne operations from SHAEF became increasingly difficult and doomed FAAA to small or tactical missions.[7]

Limited resources confined troop carrier employment. Mounting MARKET and VARSITY, or the large airphibious operations as proposed by the

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[6] "Tactical and Non-Tactical Operations During The Final Phase of the War in Europe including Operation VARSITY." Headquarters, IX Troop Carrier Command. 20 May 1945, AFHRA File #546.3069A.

[7] GEN Lewis H. Brereton, "Airborne Operations, World War II." Lecture to Air War College. 10 October 1951. AFHRA File #K239.716251-23.

Air Staff, demanded heavy commitments of time and manpower to the assault. Bradley and Patton believed those commitments were excessive and demanded troop carrier airlift supply their ground forces rather than support bold, but risky missions. Even AAF leaders like Spaatz and Eaker opposed airborne operations when they threatened to use heavy bombers and limit the Combined Bomber Offensive. Both the ground and bomber commanders believed more in their branch's power to win the war than the new airborne army. Although he created FAAA to exploit airborne's potential, Eisenhower devoted his resources to the operations he thought would most quickly end the war, thus relegating FAAA and IX TCC to supporting roles that disappointed their commanders.

Brereton and Bradley symbolize the two sides to Eisenhower's dilemma over the use of troop carrier assets. Using the troop carrier units as both fighters and freighters, the SHAEF commander devoted them to operations that balanced the immediate tactical needs of ground commanders with the strategic desires of FAAA, Marshall, Arnold, and the Air Staff. The troop carriers' flexibility condemned them to a variety of missions that they performed well by war's end, but never on the tasks imagined for them. Airborne warfare represents another facet of airpower that, like strategic bombing, failed to fulfill its potential in World War II. Though airpower advocates believed air forces could win wars alone before World War II, their actual operations contributed to victory, but did not decide the war.

Bibliography

Primary Sources

Books

Gavin, James M. On to Berlin: Battles of an Airborne Commander, 1943-1946. New York: Viking Press, 1978.

Kohn, Richard H. And Joseph P. Harahan, eds. Condensed Analysis of the Ninth Air Force in the European Theater of Operations. Washington D.C.: Headquarters, Army Air Forces, Office of Assistant Chief of Air Staff, 1946. Washington D.C.: Office of Air Force History, United States Air Force, 1984.

Warren, John C. Airborne Operations In World War II, European Theater. USAF Historical Division, Research Studies Institute, Air University, September 1956. Air Force Historical Research Agency File #101-97.

—. Airborne Missions in the Mediterranean, 1942-1945. USAF Historical Division, Research Studies Institute, Air University, September 1955. Air Force Historical Research Agency File # 101-74

Wolfe, Martin. Green Light!: Men of the 81st Troop Carrier Squadron Tell Their Story. Philadelphia: University of Pennsylvania Press, 1989.

Articles

Gavin, James M. Airborne Warfare. Washington D.C.: Infantry Journal Press, 1947.

Documents

"AAF Regulation No. 20-44. Organization, Responsibilities for Air Transportation." War Department. Headquarters, Army Air Forces, Washington." 17 August 1944. Air Mobility Command Archives, Scott Air Force Base, ILL.

Field Service Regulation, Operations. FM 100-5. War Department, Washington D.C., 22 May 1943.

"General Orders No. 8, War Department, Headquarters of the Army Air Forces, Washington." 20 June1942. Air Mobility Command Archives, Scott Air Force Base, ILL.

Documents found at the Air Force Historical Research Agency (AFHRA), Maxwell AFB, Alabama, listed below are in chronological order and referenced by AFHRA File #.

Candee, BG R.C., Commanding General , 8th Air Support Command. "Air Support of Landing Assault Operations." Address in "Minutes of a Conference on Landing Assaults, 24 May - 23 June 1943, U.S. Assault Training Center, European Theater of Operations." 27 May 1943. AFHRA File #502.44.

Dalbey, COL J.T. Chief of Staff, Airborne Command. "Airborne Troops in a Landing Assault." Address in "Minutes of a Conference on Landing Assaults, 24 May - 23 June 1943, U.S. Assault Training Center, European Theater of Operations." 28 May 1943. AFHRA File #502.44.

Williams, BG Paul L. Memorandum. NAAF Troop Carrier Command. "Subject: Training prior to OPERATION HUSKY." 20 July 1943. AFHRA File #611.719.

—. "Report on Operations and Activities Troop Carrier Command (PROV) Including Operation HUSKY 18 May - 31 July 1943." Headquarters, NAAF Troop Carrier Command (Prov), United States Army Air Forces, North Africa. 31 July 1943. AFHRA File #613.01.

"Minutes of Meeting Held at Norfolk House on August 10th to Discuss Future Policy Relating to the Employment of Airborne Forces." 10 August 1943. AFHRA File #505.10-6.

Williams, BG Paul L. "The Airborne Assault Phase of the Sicilian Campaign." Remarks at Headquarters, VIII Air Support Command. 17 August 1943. AFHRA File #532.452A.

"Joint Memorandum by the General and Air Staff on the Future Employment of Airborne Forces, War Cabinet, Chiefs of Staff Committee." 20 September 1943. AFHRA File #505.06-1.

Williams, BG Paul L. "A Report of TCC Activities Including The Italian Invasion (1 Aug - 30 Sept 1943)." Headquarters, XII Troop Carrier Command (Prov), United States Army, Sicily. 1 October 1943. AFHRA File #613.01.

Training Circular No. 113. "Employment of Airborne and Troop Carrier Forces." War Department, Washington D.C. 9 October 1943. AFHRA File #168-7045-49.

"Interview with Brigadier General Ray A. Dunn." War Department, Office of the Assistant Chief of Air Staff, Intelligence, Washington, D.C. 14 October 1943. AFHRA File #142.034-3.

Howland, LTC O.W., IX TCC Adjutant. Training Directive. HQ IX Troop Carrier Command. "Subject: Joint Training of Troop Carrier Units with Airborne Units." 4 November 1943. AFHRA File #546.712.

"Minutes of the Meeting held at A.E.A.F. Headquarters, Stanmore on 9th December, 1943 to Discuss the Employment of Airborne Forces in Continental Operations." AFHRA File #505.27-11.

"Agenda for Second Meeting of Joint Commanders-in-Chief at ST. PAUL's at 1500 hr. on Thursday, 16th December, 1943." AFHRA.

"Facts About IX Troop Carrier Command." Headquarters, Ninth Air Force. 29 December 1943. Attached change dated 26 February 1944. AFHRA File #546.201.

Johnson, BG Harry A., AEAF Training Branch. Memorandum to Deputy Commander, AEAF. "Subject: Will Units assigned to the Allied Expeditionary Air Force be trained and equipped by May 1st, or June 1st, 1944." 31 January 1944. AFHRA File #505.30-1.

Giles, MG Barney M., Chief of Air Staff. Letter to Commanding General , Ninth Air Force. "Subject: Status of Troop Carrier Training." 4 February 1944. AFHRA File #546.712.

Kuter, BG L.S., Asst. Chief of Air Staff, Plans. Memorandum to LG Carl Spaatz, "Subject: Air Operations in Western Europe in 1944." 4 February 1944. Memorandum contains an attached study signed by GEN Arnold completed summer 1943. AFHRA File #168.04-27.

"Training Program, Troop Carrier - Airborne Combined Training." Supreme Headquarters Allied Expeditionary Force. 6 February 1944. AFHRA File #505.30-1.

"Minutes of the Meeting held at HQ. A.E.A.F. on 19 February 1944 to Discuss and Agree the Requirements of a Joint Troop Carrier Command Post and Operations Room." AFHRA File #505.27-11.

Johnson, BG Harry A., Training Branch, AEAF. Memorandum to MG William O. Butler, Deputy Air Commander-in-Chief, AEAF. "Subject: IX Troop Carrier Exercises." 26 February 1944. AFHRA File # 505.30-1.

Craig, MG H.A. Asst. Chief of Air Staff, Operations, Commitments and Requirements, Headquarters, Army Air Forces, Washington. Letter to Executive Director, Army Air Force Board. 22 February 1944. AFHRA File #145.81-69.

Johnson, BG Harry A., Training Branch, AEAF. "Status Report: Ninth Air Force as at 1 March 1944." 4 March 1944. AFHRA File #505.30-1.

Johnson, BG Harry A., Training Branch, AEAF. Memorandum to Deputy Air Commander-In-Chief. "Subject: Training of Ninth Air Force Personnel." 8 March 1944. AFHRA File #505.30-1

Johnson, BG Harry A., Training Branch, AEAF. Memorandum to MG William A. Butler. "Subject: Bi-weekly Log." 20 March 1944. AFHRA File # 505.30-1.

"Warning Order: Practice Operation SIDECAR." HQ IX Troop Carrier Command. 21 March 1944. AFHRA File #546.717C

"Minutes of the Seventh Meeting of the Airborne Air Planning Committee held at Norfolk House at 1500 Hours on 24th March, 1944." AFHRA File #505.27-11.

Vandenberg, MG Hoyt S., Deputy Commander-in- Chief, AEAF. To Commanding General , USSTAF. "Interim Progress Report on Equipment, Training and Manning of Ninth Air Force." Headquarters, American Component, Allied Expeditionary Air Force 1 April 1944. AFHRA File #505.30-1

—. Memorandum to Commander-in-Chief, AEAF. "Subject: Exercise BIZZ." 5 April 1944. AFHRA File #505.89-22.

Stewart, MAJ Roderick M. Training Branch, AEAF. "Inspection Report on 50th Troop Carrier Wing to Chief of Training, Allied Expeditionary Air Force." 11 April 1944. AFHRA File #505.30-1.

—. Training Branch, AEAF. "Inspection Report on 52nd Troop Carrier Wing to Chief of Training, Allied Expeditionary Air Force." 11 April 1944. AFHRA File #505.30-1.

"Field Order: Practice Exercise MUSH." HQ IX Troop Carrier Command. 12 April 1944." AFHRA File #546.717D.

"Minutes of the Eighth Meeting of the Airborne Air Planning Committee held at Norfolk House at 1500 Hours on 14th April, 1944." AFHRA File #505.27-11.

Johnson, BG Harry A. Memorandum to Commander-in-Chief, AEAF. "Subject: EXERCISE MUSH." 21 April 1944. AFHRA File #505.89-22.

"Minutes of the Ninth Meeting of the Airborne Air Planning Committee held at Bentley Priory at 1500 Hours on 28th April, 1944." AFHRA File #505.27-11.

"Report of the Army Air Forces Board, Subject: Long Range Study of Airborne Operations." 29 April 1944. AFHRA File #145.81-69

"Minutes of the Tenth Meeting of the Airborne Air Planning Committee held at Bentley Priory at 1500 Hours on 18th May, 1944." AFHRA File #505.27-11

Craig, MG H.A., Asst. Chief of Air Staff, Operations, Commitments and Requirements, Headquarters, Army Air Forces, Washington. "Memorandum For the Chief of Air Staff, Subject: Full-Scale Airphibious Operations." 22 May 1944. AFHRA File #145.81-69A.

Memorandum to Chief of Staff. "Subject: Full-Scale Airphibious Operations." War Department, Headquarters Army Air Forces, Washington D.C.. 24 May 1944. AFHRA File #145.81-69A.

Craig, MG H.A. Memorandum to COL McKee "Subject: Airphibious Operations." 28 May 1945. AFHRA File #145.81-69A.

Giffin, COL S.F., Requirements Division, Office of Asst. Chief of Air Staff, Operations, Commitments and Requirements. Memorandum to the Asst. Chief of Air Staff Plans. "Subject: Airphibious Operations." 29 May 1944. AFHRA File #145.81-69A.

Loutzenheiser, COL Joe L., Chief, Operational Plans Division, Headquarters, Army Air Forces, Washington. Memorandum to the Chief, European Section. "Subject: Airphibious Operations." 30 May 1944. AFHRA File #145.81-69A.

McKee, COL William F. Memorandum to General Giles. "Subject: Radio CM-IN-9167, 11 June 1944, from SHAEF." 12 June 1944. AFHRA File #145.81-69A

Williams, BG Paul L., Commanding General, IX Troop Carrier Command. "Report of Operation NEPTUNE to Commanding General Army Air Force." 13 June 1944. AFHRA File # 546.452G.

---. Memorandum to Commanding General AAF, Washington D.C. "Troop Carrier Command Training Program for Operation Neptune." 14 June 1944. AFHRA File #546.452G.

Letter from LG Carl A. Spaatz to General H. H. Arnold, 20 June 1944. AFHRA File #519.612

Ruestow, P.E. COL. Chief, Air Staff Logistics Planning Branch. Memorandum to Asst. Chief of Air Staff. "Subject: Airborne Operations against Southern Coast of France." 22 June 1944. AFHRA File #145.81-69.

Hilger, COL John A., Asst. Chief Policies Division, AAF Board. Memorandum to President Army Air Forces Board, Orlando Florida, "Subject: Evaluation of Neptune-Bigot Report." 5 July 1944. AFHRA File #546.452.

Anderson, MG F.L., Deputy Commander, USSTAF. Letter to MG L.S. Kuter, Headquarters, Army Air Forces. 24 July 1944. AFHRA File #145.81-69.

Petty, COL Dick R. Chief of Staff, PTCAD. Training Memorandum, Headquarters PTCAD. 24 July 44. Attached Memos dated 27 July 44 to Commanding Officers 51st TCW and 53rd TCW concerning Joint Training with 2nd Independent Parachute Brigade. AFHRA File #456.452B.

"Historical Data, Headquarters IX Troop Carrier Command, 1-31 July 1944." AFHRA File #546.01.

"Notes on Conference between LG Brereton and LG Doolittle, 1730, 5 August 1944." AFHRA File #168-7045-49.

Parks, BG Floyd L., Chief of Staff, Combined Airborne Forces. Memorandum to Commanding General, IX TCC. "Subject: Training of Troop Carrier and Airborne Units." 6 August 1944. AFHRA File #168-7045-49.

—. Memorandum to Commanding General, XVIII Airborne Corps. "Subject: Training of XVIII Airborne Corps." 6 August 1944. AFHRA File #168-7045-49.

"General Brereton's Notes to Chief of Staff as Result of Conference at Stanmore August 7th, Midday." AFHRA File #168-7045-49.

"Orders for LG Lewis H. Brereton creating Combined Airborne Headquarters from Supreme Commander, Allied Expeditionary Force." 8 August 1944. AFHRA File #168-7045-49.

Eisenhower, GEN Dwight D., Supreme Commander, Allied Expeditionary Forces, by COL E.C. Boehnke, Adjutant General. Memorandum. "Subject: Reorganization of Airborne Forces." 8 August 1944. AFHRA File #546.201.

Royce, MG Ralph, Deputy Air Commander-in-Chief, AEAF. Memorandum to LG Spaatz, Commanding General, USSTAF. 8 August 1944. AFHRA File #519.612.

"Notes, Staff Meeting" Headquarters, Combined Airborne Forces. 8 August 1944. AFHRA File #168-7045-49.

"Notes on Conference at Moore Park, headquarters British Airborne Corps, Tuesday, August 8th, 1000 Hours." AFHRA File #168-7045-49

Stearley, BG R.F. "Notes on Conference with General Brereton 1515, 9 August 1944." AFHRA File #168-7045-49.

—. Memorandum for General Cutler." "Subject: Airfields in France." 9 August 1944. AFHRA File #168-7045-49.

"Notes on Stanmore Meeting 1100, August 10 1944." AFHRA File #168-7045-49.

Larocque, LTC Joseph Jr., G-3 Section, FAAA. Memorandum to BG Stearley. "Subject: Meeting at British Airborne Headquarters, Moore Park." 10 August 1944. AFHRA File #168-7045-49.

"Notes, Staff Meeting, Headquarters, Combined Airborne Force." 11 August 1944. AFHRA File #168-7045-49.

Parks, BG Floyd L., Chief of Staff, FAAA. Memorandum. "Subject: Report of Visit by Chief of Staff, Combined Airborne Forces to Headquarters, 12th Army Group, Afternoon of 11 AUG. '44." AFHRA File #168-7045-49.

Larocque, LTC Joseph Jr. Memorandum to BG Stearley. "Subject: Meeting at British Airborne Headquarters, Moore Park." 11 August 1944. AFHRA File #168-7045-49.

—. Memorandum to BG Stearley. "Subject: Notes on a Meeting at British Airborne Headquarters." 12 August 1944. AFHRA File #168-7045-49.

—. Memorandum to BG Stearley. "Subject: Meeting with Col Richards." 12 August 1944. AFHRA File #168-7045-49.

Stearley, BG R.F. Memorandum to LG Lewis H. Brereton, Commanding General, FAAA. "Subject: Answer to Inquiries." 13 August 1944. AFHRA File #168-7045-49.

Parks, BG Floyd L. Memorandum to BG Stearley "Subject: Telephone Conversation with MG Maxwell Taylor concerning Movement to Continent and T/O." 13 August 1944. AFHRA File #168-7045-49.

Hobbs, COL L.E. , Asst. G-3, FAAA. Memorandum to BG Stearley. "Subject: Cover for Formations." 14 August 1944. AFHRA File #168-7045-49.

"Notes, Staff Meeting, Headquarters, First Allied Airborne Army." 15 August 1944. AFHRA File #168-7045-49.

Larocque, LTC Joseph. Jr. Memorandum to BG Stearley. "Subject: Emergency Refueling Strips." 15 August 1944. AFHRA File #168-7045-49.

Parks, BG Floyd L. Memorandum to BG Stearley. "Subject: Future Operations." 15 August 1944. AFHRA File #168-7045-49.

Stearley, BG R.F. Memorandum to BG Floyd L. Parks. "Subject: War Weary B-24 and B-17 Aircraft." 16 August 1944. AFHRA File #168-7045-49.

Eisenhower, GEN Dwight D., Supreme Commander, Allied Expeditionary Forces, by COL E.C. Boehnke, Adjutant General. Memorandum. "Subject: Redesignation of Combined Airborne Forces." 16 August 1944. AFHRA File #546.201.

"Notes, Staff Meeting." Headquarters, FAAA. 16 August 1944. AFHRA File #168-7045-49.

Arnold, GEN Henry H. Letter to LG Brereton. 16 August 1944. AFHRA File #145.81-69.

—. Memorandum to LG Brereton. "Subject: Strategic Employment of Large Airborne Forces on the Continent." 16 August 1944. AFHRA File #145.81-69.

"Notes, Staff Meeting." Headquarters, FAAA. 17 August 1944. AFHRA File #168-7045-49.

"Notes, Staff Meeting." Headquarters, FAAA. 18 August 1944. AFHRA File #168-7045-49.

Larocque, LTC Joseph, Jr. Memorandum to BG Stearley. "Subject: Fighter Escort for Troop Carrier." 18 August 1944. AFHRA File #168-7045-49.

Babcock, COL V.W., G-3 Section. Memorandum to BG Stearley. "Subject: Emergency Cargo Transport Operation." 18 August 1944. AFHRA File #168-7045-49.

Bartley, LTC Thomas M. Jr., G-3 Section, FAAA. Memorandum to LG Brereton. "Subject: Parallel Organization of Troop Carrier and Airborne Units." 18 August 1944. AFHRA File #168-7045-49.

Stearley, BG R.F. Memorandum to COL R.P. Swofford, Jr., Asst. G-3, FAAA. "Subject: Move to Paris Airfields." 18 August 1944. AFHRA File #168-7045-49.

—. Memorandum to BG Floyd L. Parks. "Subject: Supply Air Support." 19 August 1944. AFHRA File #168-7045-49.

—. Memorandum to COL L.E. Hobbs, Asst. G-3, FAAA. "Subject: Move to Paris Airfields." 19 August 1944. AFHRA File #168-7045-49.

—. Memorandum to BG Floyd L. Parks. "Subject: First Allied Airborne Army Move to the Continent." 20 August 1944. AFHRA File #168-7045-49.

Brereton, LG Lewis H. Letter to General Eisenhower. 20 August 1944. AFHRA File #168-7045-49.

Cartwright, COL Harold H. Memorandum to BG Stearley. "Subject: Visit with General Eisenhower." 21 August 1944. AFHRA File #168-7045-49.

Williams, BG Paul L. "Report For Operation Dragoon, Headquarters Provisional Troop Carrier Air Division, U.S. Army Air Forces." 22 August 1944. AFHRA File #456.452.

Stearley, BG R.F. Memorandum to BG Floyd L. Parks. "Subject: Movement of First Allied Airborne Army to Continent." 23 August 1944. AFHRA File #168-7045-49.

"Minutes, Chief of Staff's Conference, First Allied Airborne Army." 24 August 1944. AFHRA File #168-7045-49.

Larocque, LTC Joseph Jr. "Memorandum to BG Stearley. "Subject: Status of Air Support Parties." 24 August 1944. AFHRA File #168-7045-49.

Parks, BG Floyd L. "Notes on telephone call from COL Sutterlin." 28 August 1944. AFHRA File #168-7045-49.

"Historical Data." Headquarters IX Troop Carrier Command. 1-31 August 1944. AFHRA File # 546.01.

Parks, BG Floyd L. Memorandum to Commanding General, Ninth Air Force. "Subject: Moving IX Troop Carrier Command Airfields to Continent." 31 August 1944. AFHRA File #168-7045-49.

Bartley, LTC Thomas M. Jr., G-3, FAAA. Memorandum. Headquarters, FAAA. "Subject: C-47 Radius of Action." 9 September 1944. AFHRA File #168-7045-49.

Stearley, BG R.F. Memorandum to BG Floyd L. Parks. "Subject: Take Off Airdromes, Operation LINNET." 9 September 1944. AFHRA File #168-7045-49.

---. Memorandum to BG Parks. "Subject: Redesignation of IX Troop Carrier Command." 10 September 1944. AFHRA File #168-7045-49.

---. Memorandum to BG Parks. " Subject: Retain COL. Bagby." 10 September 1944. AFHRA File #168-7045-49.

---. "Memorandum to BG Parks. "Subject: Training of U.S. 17th Airborne and British 6 Airborne Divisions." 12 September 1944. AFHRA File #168-7045-49.

---. Memorandum to BG Parks. "Subject: More Training of U.S. 17th Airborne and British 6th Airborne Divisions." 12 September 1944. AFHRA File #168-7045-49.

—. Memorandum to LTC Thomas Bartley. "Subject: Forward Basing of Troop Carrier Aircraft." 12 September 1944. AFHRA File #168-7045-49.

Gavin, BG James M. Letter to MG P.L. Williams. 25 September 1944. AFHRA File #546.452K-1.

Anderson, MG F L., Deputy Commander Operations, Eighth Air Force. Memorandum to LG Carl A. Spaatz. 26 September 1944. AFHRA File #519.612,

Spaatz, LG Carl A., Letter to GEN H.H. Arnold. 30 September 1944. AFHRA File #519.612.

Stearley, BG R.F. "Narrative written for BG Floyd Parks, FAAA Chief of Staff," October 1944. AFHRA File #168-7045-49.

Nash, CPT Harry F. Acting Asst. Adjutant General for MG Williams. "Preliminary Report on Operation "MARKET." To Commanding General, Army Air Forces. Headquarters IX Troop Carrier Command. 3 October 1944. AFHRA File #546.327.

Angell, LTC Robert C. Historian, G-3, Headquarters FAAA. "Narrative of Operations in Holland." 9 October 1944. AFHRA File #168.7045-46.

Arnold, GEN Henry. Letter to LG Lewis H. Brereton. 13 October 1944. AFHRA File #168-7045-49.

—. , Letter to LG Brereton. 19 October 1944. AFHRA File #168-7045-49.

Brereton, LG Lewis H. Letter to GEN Henry Arnold. 20 October 1944. AFHRA File #168-7045-49.

—. Letter to GEN Henry Arnold. 24 October 1944. AFHRA File #168-7045-49.

Weir, CPT J.W. "Statistical Summary of the Activities of IX Troop Carrier Command (Period 4 June 1944 - 7 October 1944)." Headquarters IX TCC, Statistical Control Office. 26 October 1944. AFHRA File #546.308.

—. "Operations Activity Reports, Headquarters IX Troop Carrier Command Statistical Control Office." for weeks ending 7 October, 14 October, 21 October 1944 dated 19 October, 20 October, and 27 October respectively. AFHRA File #546.308.

"Operations Activity Report, Tri-monthly Period Ending 20 November 1944." Headquarters IX Troop Carrier Command, Statistical Control Office. 28 November 1944. AFHRA File #546.308

Brereton, LG Lewis H. Letter to Supreme Commander, Allied Expeditionary Force. "Subject: Airborne Operations in Holland, September-November, 1944 (MARKET)." 22 December 1944. AFHRA File #168.7045-46.

"First Allied Airborne Army." Headquarters First Allied Airborne Army. December 1944. AFHRA File #168.7045-45.

Carlson, LTC A.C. "Staff Study: Preliminary Views on the Employment of Airborne Armies." December 1944. AFHRA File #145.81-69.

"Consolidated Summary, Operation REPULSE, 22nd to 29th December 1944." Headquarters IX Troop Carrier Command, Statistical Control Office. No date of completion. AFHRA File #546.308.

Kuter, BG L.S. Asst. Chief of Air Staff, Plans. Memorandum to Commanding General, Army Air Forces. "Subject: Organization and Deployment of 1st Airborne Army." 2 January 1945. Attached Draft Letter to LG Brereton. AFHRA File #145.81-69.

Williams, MG Paul L. "Report on Operation REPULSE" to Commanding General, Army Air Forces." 3 January 1945. AFHRA File #546.461C.

Brereton, LG Lewis H. Letter to GEN Arnold. 16 January 1945. AFHRA File #168-7045-49.

---. Letter to LG Spaatz. 26 January 1945. AFHRA File #168-7045-49.

"Operations Activity Report." Headquarters IX Troop Carrier Command, Statistical Control Office. 10 February 1945. AFHRA File #546.603.

"Letter of Instruction: IX Troop Carrier Command. Subject: Troop Carrier Exercise TOKEN. To Air Officer Commanding, 38 Group, RAF, Commanding General /Commanding Officer 50th, 52d, 53d TCW." 12 March 1945. AFHRA File # 546.717F.

"Field Order for Operation CHOKER II." Headquarters IX Troop Carrier Command. 23 March 1945. AFHRA File #546.327.

Brereton, LG Lewis H. Letter to GEN Arnold. "Subject: Initial Report on Operation VARSITY." 25 March 1945. AFHRA File #168.7045.

—. Letter to GEN Arnold. "Subject: Follow-up Report on Operation VARSITY, including Analysis of Losses." 28 March 1945. AFHRA File #145.81-69

"Statistical Summary for the Year 1944, IX Troop Carrier Command, APO 133, U.S. Army." Statistical Control Office, IX Troop Carrier Command. 28 March 1945. AFHRA File #546.603.

"Narrative of OPERATION VARSITY 20 March 1945." Headquarters, FAAA. 31 March 1945. AFHRA File #168.7045.

"Tactical and Non-Tactical Operations During The Final Phase of the War in Europe including Operation VARSITY." Headquarters, IX Troop Carrier Command. 20 May 1945. AFHRA File #546.3069A.

Bradley, GEN Omar N., Military Advisor, United States Strategic Bombing Survey and Air Effects Committee, 12th Army Group. Effect of Air Power on Military Operations, Western Europe . 15 July 1945. AFHRA File #168.6005-127.

First Allied Airborne Army. Headquarters, FAAA. Exact Date Unknown. AFHRA File # 168.7045-45,

"Airborne Operations: A German Appraisal." Office of the Chief of Military History, Special Staff, U.S. Army. Washington D.C. October 1951. AFHRA File #K170.1302-232.

Brereton, GEN Lewis H. "Airborne Operations, World War II." Lecture to Air War College. 10 OCT 1951. AFHRA File #K239.716251-23.

Secondary Sources

Books

Bennett, Ralph. Ultra and Mediterranean Strategy. New York: William Morrow and Company, Inc., 1989.

Blair, C. Ridgway's Paratroopers: The American Airborne in World War II. New York: Dial Press, 1985.

Breuer, William B. Geronimo: American Paratroopers in World War II. New York: St. Martin's Press, 1989.

Brinson, W.L. Three One Five Group: An Account of the 315th Troop Carrier Group USAAF 1942-45. Lakemont: Couple House Books, 1984.

Clark, Alan. The Fall of Crete. New York: Morrow, 1962.

Copp, DeWitt S. A Few Great Captains: The Men and Events that Shaped the Development of U.S. Air Power. Garden City: Doubleday & Company, Inc., 1980.

---. Forged in Fire: Strategy and Decisions in the Airwar over Europe 1940-1945. Garden City: Doubleday & Company, Inc. 1982.

Craven, Wesley Frank and James Lea, eds. The Army Air Forces in World War II: Volume One: Plans and Early Operations, January 1939 to August 1942. Chicago: The University of Chicago Press, 1948.

---. The Army Air Forces in World War II, Volume Two, Europe: Torch to Pointblank, August 1942 to December 1943. Chicago: University of Chicago Press, 1949.

---. The Army Air Forces in World War II, Volume Three, Europe: Argument to V-E Day, January 1944 to May 1945. Chicago: University of Chicago Press, 1951.

---. The Army Air Forces in World War II, Volume Six, Men and Planes. Chicago: University of Chicago Press, 1949.

Crookenden, Sir Napier. Dropzone Normandy: The Story of the American and British Airborne Assault on D-Day 1944. New York: Scribner, 1944.

Devlin, Gerard M. Silent Wings: The Story of the Glider Pilots of World War II. London: W.H. Allen, 1985.

---. Paratrooper!: The Saga of U.S. Army and Marine Parachute and Glider Troops in World War II. New York: St. Martin's Press, 1979.

Eisenhower, David. Eisenhower: At War 1943-1945. New York: Random House. 1986.

Futrell, Robert Frank. Ideas, Concepts , Doctrine: Basic Thinking in the United States Air Force 1907-1960. Maxwell AFB, AL: Air University Press. 1989.

Gabel, Christopher, R. The US Army GHQ Maneuvers of 1941. Washington, D.C.: Center of Military History, USA, 1991.

---. Ed. William C. Mitchell. The Making of a Paratrooper: Airborne Training and Combat in World War II. Lawrence: University Press of Kansas, 1990.

Hoyt, Edwin Palmer. Airborne: The History of American Parachute Forces. New York: Stein and Day, 1979.

Huston, James A. Out of The Blue: US Army Airborne Operations in World War II. West Lafayette: Purdue University Studies, 1972.

Larrabee, Eric. Commander in Chief, Franklin Delano Roosevelt, His Lieutenants, and Their War. Simon & Schuster Inc.: New York. 1987.

Lowden, John L. Silent Wings at War: Combat Gliders in World War II. Washington: Smithsonian Institution Press, 1992.

Miller, Charles E. Airlift Doctrine. Maxwell AFB, AL; Air University Press, 1988.

Military Airlift Command, Office of History. Anything, Anywhere, Anytime: A History of the Military Airlift Command, 1941-1991. Washington, D.C.: Government Printing Office, May 1991.

Mrazek, James E. The Fall of Eban Emael: Prelude to Dunkerque. Washington, Luce, 1970.

Noetzel, Jonathan. To War on Tubing and Canvas: A Case Study in the Interrelationships between Technology, Training, Doctrine, and Organization. Thesis. Maxwell AFB: Air University Press, 1993. School of Advanced Airpower Studies Thesis.

Stewart, McDonald G. The Struggle for Crete 20 May-1 June 1941: A Story of Lost Opportunity. London: Oxford University Press, 1966.

Tugwell, Maurice Airborne To Battle. London: William Kimber and Co. Ltd., 1971.

Van Creveld, Martin. Supplying War: Logistics from Wallenstein to Patton. Cambridge: Cambridge University Press, 1977.

Weigley, Russell. The American Way of War: A History of United States Military Strategy and Policy. Bloomington: Indiana University Press, 1973.

Unpublished Thesis

White, Douglas S. "The Evolution Of Airdrop Technique From An Aircrew Perspective." Thesis. Air Command and Staff College. Report #84-2770, 1984.